

# PCB REMEDIATION PLAN

Behlen Laboratory



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**Project No. 228508**  
**University of Nebraska**  
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## 1. INTRODUCTION

This Remediation Plan (Plan) has been prepared by Woodard & Curran on behalf of the University of Nebraska Lincoln (UNL) to comply with U.S. Environmental Protection Agency (EPA) requirements for a polychlorinated biphenyl (PCB) cleanup and disposal under 40 CFR Part 761.

This plan describes the data collected and details the proposed remedial approach for PCB-containing building materials to be encountered during planned renovations at the Behlen Laboratory located at 500 Stadium Drive on UNL's campus in Lincoln, Nebraska (see Figure 1-1 below).

**Figure 1-1 Site Location**



### 1.1 BACKGROUND

Behlen Laboratory is a concrete structure constructed in 1965 with two floors below grade and three floors above grade. The exterior façade consists of structural bays defined by exposed cast-in-place concrete columns and floor slabs and precast panels and windows. The building was designed for use as office space, a library, and research laboratories. The Behlen laboratory has an approximate gross square footage of 21,000 and a building footprint of approximately 4,800 square feet. The building is bordered on the west by Stadium Drive and surrounded by academic buildings to the north, east, and south. The surrounding ground surfaces consist of concrete walkways and/or grass-landscaped surfaces.

A renovation project is currently planned for the first three levels of the building to upgrade/renovate the existing spaces for enhanced research. The following activities are planned as part of the renovations:

- Removal of all precast panels, windows, and louvers on the building's façade and construction of a new façade configuration.

- Removal and replace the building's north side entrance.
- Complete renovation of interior spaces, including: removal of existing CMU wall assemblies; doors; mechanical enclosures; ductwork and assemblies; and miscellaneous fixtures.

## 1.2 CONCEPTUAL SITE MODEL

Certain joint caulking and other materials used as part of standard construction practices for masonry buildings and concrete structures erected between the 1950's and late 1970's is known to have been manufactured with PCBs. PCBs were added to these materials for durability, resistance to degradation, and as a softener/plasticizer for application. Due to the porous nature of concrete and other masonry surfaces, PCBs may penetrate into adjacent materials during application or over time, may leach or weather, and/or may be disturbed during renovations or other work. Production and approved usage of PCBs was halted in the United States in the late 1970s. As indicated above, the Behlen Laboratory was constructed during this time period of PCB use in building materials.

As part of the preparation for the renovation project, a materials survey was conducted to check for the presence of various hazardous materials that may be encountered during the project. This included inspection and sampling of suspect materials for PCBs.

Results from the survey and sampling indicated that caulking along exterior masonry joints between the cast-in-place concrete and the precast panels as well as caulking along perimeter window frame to concrete joints contained PCBs at concentrations  $\geq 50$  parts per million (ppm). Characterization samples of concrete formerly in direct contact with the caulking were collected following pilot test activities to determine the presence and concentration of PCBs in building substrates and if abatement would be successful in eliminating residual PCBs  $> 1$  ppm in these materials. Concentrations  $> 1$  ppm were detected in these samples.

## 1.3 REMEDIATION OVERVIEW

Sample results of caulking and masonry materials have been used, in conjunction with the overall renovation plan, to develop a remediation plan, to be implemented as part of the renovation project, for the removal and disposal of  $\geq 50$  ppm PCB-containing materials and for those materials impacted by the  $\geq 50$  ppm PCB containing materials.

The proposed remediation is a combination of removal and off-site disposal of PCB Bulk Product Waste under 40 CFR 761.62 with a risk-based cleanup and disposal plan prepared in accordance with 40 CFR 761.61(c) for residual PCBs that are present in building materials scheduled to remain in-place. Caulking containing  $\geq 50$  ppm PCBs and building materials coated by/in direct contact with the caulking and scheduled for removal (precast concrete panels, windows, ventilation louvers, etc.) will be removed for off-site disposal as PCB Bulk Product Waste. Residual PCBs in cast-in-place concrete building materials scheduled to remain in place will be encapsulated using a combination of liquid coatings and/or secondary physical barriers to eliminate potential direct contact with the materials and leaching of PCBs out of the materials over time.

The renovation project is scheduled to begin in 2015. It is anticipated that the PCB and other hazardous materials abatement/remediation aspects of the project will be conducted as part of the initial phases of the project.

## 1.4 PLAN ORGANIZATION

This Remediation Plan is organized into the following sections:

### Section 2: Sample Collection, Analysis, and Data Usability

### Section 3: Remediation Plan Overview

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**Section 4: Management of Removed Materials**

**Section 5: In-Place Management of Residual PCBs in Concrete**

**Section 6: Waste Storage and Disposal**

**Section 7: Conceptual Long Term Monitoring and Maintenance**

**Section 8: Project Schedule and Restoration**

**Section 9: Recordkeeping and Documentation**

**1.5 CERTIFICATION**

The following is information regarding the entity submitting this Plan:

Ms. Brenda Osthus  
Director, EHS  
University of Nebraska-Lincoln  
3630 East Campus Loop  
Lincoln, NE 68583

Please note that Ms. Brenda Osthus is acting on behalf of the University of Nebraska - Lincoln and not as an individual.

A copy of the written certification signed by the owner of the property and required as part of this plan submittal is provided in Appendix A.

## **2. SAMPLE COLLECTION, ANALYSIS, AND DATA USABILITY**

Representative samples of building materials were taken to identify the presence of PCBs in building materials scheduled to be disturbed during the upcoming renovations.

### **2.1 CHARACTERIZATION SAMPLE COLLECTION**

Characterization sampling of caulking/sealants scheduled to be disturbed as part of the renovations were collected for laboratory analysis. Samples of caulking were collected on July 14, 2014, November 6, 2014, and November 10, 2014 by representatives from UNL. Samples of masonry were collected on September 4, 2014 and as part of the pilot test activities on November 13, 2014 by representatives from UNL.

A total of 23 samples were collected as follows:

- Potential Source Materials – 18 samples of suspect source materials (caulking, sealants, etc.) were collected and submitted for PCB analysis.
- Building Materials – 5 samples of masonry were collected and submitted for PCB analysis.

A summary of the samples collected and the analytical results is presented on Table 2-1 for potential source materials and on Table 2-2 for adjacent building materials. Representative locations for the samples are depicted on photographs included in Appendix B.

#### **2.1.1 Sample Collection Methods**

Caulking/sealant samples were collected by cutting/scraping the materials from the joint with hand tools. Masonry samples were collected using a grinding wheel (September 2014 samples) or in accordance with EPA Region 1 Standard Operating Procedures for Sampling Porous Materials for PCBs (May 2011) using a rotary impact hammer drill to a depth of 0.5 inches (November 2014 samples).

Samples were placed directly into laboratory provided sample containers, logged on a chain of custody, and transferred to the analytical laboratory via overnight delivery (FedEx). Samples were submitted to the analytical laboratory for extraction via USEPA Method 3540C (ConTest Analytical and Midwest Laboratories) or 3550B (SanAir Technologies) and analyzed for PCBs via USEPA Method 8082. Laboratory reports are provided in Appendix C.

## **2.2 CHARACTERIZATION SAMPLING RESULTS SUMMARY**

A summary of the characterization sampling results is provided in the following sections.

### **2.2.1 Caulking Sealants**

Upwards of 10,000 linear feet (l.f.) of caulking is present along exterior joints on the building façade including: precast to cast-in-place concrete joints; precast to precast concrete joints; and metal frame (window, door, or louver) to concrete joints (both precast and cast-in-place). The joints are primarily configured with multiple short runs of caulking and angled joints with straight runs up to several feet long in some areas. A summary of the characterization sampling results is as follows:

#### Building Masonry Caulking

- Concrete to Concrete Façade Joint Caulking – Gray caulking was observed along the joints between the cast-in-place structural concrete and the precast concrete panels. Four samples of caulking were collected

from representative locations around the building. Analytical results indicated that PCBs were present at concentrations ranging from 1,520 to 4,800 ppm.

- **Summary – Based on the sample results, caulking located along the cast-in-place to precast concrete joints has been determined to contain  $\geq 50$  ppm PCBs.**

#### Window Caulking Sealants

- Exterior Perimeter Frame Caulking – Caulking was observed along the metal window frame to structural cast-in-place concrete columns and slabs. Analytical results indicated that PCBs were present at concentrations of 1,200 and 1,740 ppm.
- Interior Perimeter Frame Caulking – Tan caulking was observed along the metal frame to concrete joints. Analytical results from the three samples indicated that PCBs were present at concentrations of 33.2 and 62.73 ppm and reported as non-detect ( $< 1.98$  ppm).
- Glazing Sealants and Sealants Integral to the Window Assembly:
  - Glazing Sealants – Two samples were collected from interior and exterior glazing sealants (one of each). Analytical results indicated that PCBs were non-detect ( $< 1.98$  ppm).
  - Interior Frame Caulking – One sample was collected from a bead of caulking along an interior frame to frame window joint. Analytical results indicated that PCBs were non-detect ( $< 1.98$  ppm).
- **Summary – Based on the sample results, perimeter window caulking (interior and exterior) is considered to contain PCBs  $\geq 50$  ppm. Integral window sealants (i.e., glass to frame sealants) have been determined to be non-PCB containing.**

#### Miscellaneous Caulking

- Interior Door Caulking – Tan caulking was observed along metal door frame to wall joints of interior doors. Analytical results from the three samples collected indicated that PCBs were present at concentrations of 1.71, 2.098, and 2.851 ppm.
- Ductwork Sealants – Gray and tan sealants were observed on the metal ductwork. One sample of each was collected and PCBs were reported as non-detect ( $< 0.376$  and  $< 0.482$  ppm).
- Concrete Walkway Caulking – Analytical results from a sample of caulking collected from the concrete to concrete joints within the north entryway walkway indicated that PCBs were non-detect ( $< 0.81$  ppm).
- **Summary – Based on the sample results, the above caulking/sealants have been determined to either contain  $< 50$  ppm PCBs or to be non-PCB containing.**

### **2.2.2 Building Masonry**

On September 4, 2014, concrete samples were collected from the cast-in-place and the precast concrete panels at a distance of between 0.25 to 0.75 inches from the caulked joints to determine if PCB impacts were present in the concrete. Analytical results indicated that PCBs were present at a concentration of 54 ppm in the cast-in-place concrete and at a concentration of 0.15 ppm in the precast panel. The difference in the two concentrations may be attributable to variations in the distances from the caulked joints and/or the collection methods, which consisted of collecting the samples at a distance of between 0.25 and 0.75 inches from the caulked joints using a grinding wheel.

On November 13, 2014, additional samples were collected from the cast-in-place concrete on the south elevation as part of a pilot test activity to determine if residual PCB impacts were present in the concrete following removal of the caulking and to determine the extent of PCB impacts away from the caulked joints. A summary of the pilot test activities is as follows:



- A section of the exterior precast concrete panel was removed to expose the cast-in-place concrete and caulked joint;
- Residual caulking was removed using a hand/razor blade scraper;
- Cast-in-place concrete was removed using a hammer and chisel to a depth of between 0.25 and 0.5 inches; and
- The concrete was cleaned with a detergent scrub.
- Former Direct Contact Materials - Two samples of concrete formerly in direct contact with the  $\geq 50$  ppm PCB caulking were collected from the vertical and horizontal face of the cast-in-place concrete slab following removal of the caulking and concrete to a depth of 0.25 to 0.5 inches. Analytical results indicated that PCBs were present at concentrations of 2.25 and 11.3 ppm.
- Away from the Joint – One sample of cast-in-place concrete slab was collected from the vertical face at a distance of two inches from the caulked joint to determine the extent of PCB impacts  $> 1$  ppm. Analytical results indicated that PCBs were present at a concentration of 0.78 ppm.
- ***Summary – Based on the analytical results, PCB impacts  $> 1$  ppm in the cast-in-place concrete may be limited to within two inches of the  $\geq 50$  ppm PCB caulking. Analytical results also indicated that following removal of up to 0.5 inches of concrete formerly in direct contact with the caulking, PCB impacts  $> 1$  ppm were still present in the cast-in-place concrete.***

## 2.3 DATA USABILITY ASSESSMENT

This data quality and data usability assessment has been conducted to review the samples collected in support of the characterization activities. Data validation and review was conducted by a third-party validator, Data Check, Inc. of New Durham, New Hampshire. For samples submitted to Midwest Laboratories this review was limited to sample holding times, extraction and analytical methods because no other QA/QC parameters were provided in the report. For samples submitted to SanAir Technology Laboratory, the evaluation also included surrogate recoveries. For samples submitted to ConTest Analytical, samples were evaluated through a review of the internal laboratory QA/QC procedures and results including surrogate recoveries, blank results, matrix spike (MS) and matrix spike duplicate (MSD) results, laboratory control standard (LCS) and laboratory control standard duplicate (LCSD) results. Data Check's data validation summaries are provided in Appendix C.

A summary of the data usability assessment for the data is presented below:

- All samples were analyzed for PCBs by USEPA Method 8082. Samples submitted to ConTest Analytical and Midwest Laboratories were extracted using method 3540C. Samples submitted to SanAir Technologies were extracted using method 3550B.
- Sample containers were delivered to the laboratory under standard chain of custody procedures. Samples submitted were extracted and analyzed within the allowable holding times.
- Some samples submitted to ConTest Analytical were analyzed at dilutions due to the concentration of PCBs present in the samples and/or due to sample matrix. Elevated quantitation limits are reported in these samples as a result of the dilutions.
- The RPD between sample column results for individual samples submitted to ConTest Analytical was evaluated to assess the precision of the results. The RPD met acceptance criteria with the exception of three samples. Analytical results from these samples were qualified as estimated based on this evaluation.

- For samples submitted to ConTest Analytical, the LCS/LCSD met acceptance criteria with the exception of the LCS/LCSD results for Aroclor 1016 and 1260 results for sample associated with laboratory report 14K0312. Analytical results for detected Aroclor 1260 within this sample group have been qualified as estimated (J). Aroclor 1016 was not reported in the affected samples.
- Accuracy of the analytical data for samples submitted to ConTest Analytical was assessed by reviewing the recoveries for MS/MSD results. Results of the MS/MSD recoveries met the acceptance criteria with the exception of Aroclor 1016 and 1260 results on one sample; however, no qualifications were applied due to Aroclor 1254 interferences.
- Surrogate recoveries for samples submitted to ConTest Analytical and SanAir Technologies were evaluated. All surrogates met the acceptance criteria or were diluted out with the exception of four samples. Detect and non-detect results in two of the samples were qualified as estimated (J or UJ). Results from one sample were not qualified due to the surrogate recovery having been diluted out. Analytical results (all non-detect) from the fourth sample (PCB-07) were rejected due to the surrogate recoveries being out of the acceptance criteria and diluted out and the reported minimum laboratory reporting limit which was set at 0 ppm. Results from this fourth sample have not been included in this report.
- No analytes were detected in the method blanks analyzed with the samples submitted to ConTest Analytical. No qualifications were applied.
- No PCB field duplicates or field blank samples were submitted. No qualifications were applied.
- According to the case narrative from ConTest Analytical for Aroclor 1242 in one sample and Aroclor 1248 in one sample, the sample fingerprints did not match the standards exactly. The Aroclor with the closest matching pattern was reported by the laboratory. No qualifications were applied.
- According to the case narrative from ConTest Analytical for Aroclor 1254 in one sample, continuing calibration non-conformance was present on the confirmatory detector and the lower of the two results was reported. Analytical results for Aroclor 1254 were qualified as estimated in the affected sample.

Based on this review, the data adequately represents the materials tested, and is considered usable for its intended purpose.

### 3. REMEDIATION PLAN OVERVIEW

This Plan has been developed for the remediation of PCB Bulk Product Waste and building materials impacted by PCBs from  $\geq 50$  ppm materials that will be disturbed during the upcoming renovation project at the Behlen Laboratory. The proposed remediation is a combination of removal and off-site disposal of PCB Bulk Product Waste with the in-place management of building substrates containing residual PCBs  $> 1$  ppm and scheduled to remain in place.

#### 3.1 REMEDIATION SUMMARY

As part of the renovation, all materials within the structural bays are to be removed from the building façade, leaving only the structural cast-in-place concrete columns and slabs. As described previously, the structural cast-in-place concrete columns and slabs form distinct bays. Materials within each bay are scheduled to be removed as part of the comprehensive renovation, which includes the construction of a new façade for the building. The bays can be segregated into four basic configurations: two containing precast concrete (along with windows and ventilation louvers) and two containing only windows and/or doors (see the photographs below). A summary description of each is as follows:

- Bays Containing Precast Concrete

- East and West Elevations (33 bays) – Structural bays on the first through third floors of the east and west elevations are arranged in “stacks” of three bays (one per floor). Each bay is bordered on the sides by the cast-in-place structural concrete columns and on the top and bottom by horizontal cast-in-place concrete slabs. The bays are approximately 20 feet wide and approximately 13 feet tall. Precast concrete panels and



**West Elevation Structural Bays**

- pipe chases, windows, and ventilation louvers within each bay are scheduled to be removed as part of the façade renovations. Caulking containing  $\geq 50$  ppm PCBs is present throughout the bays along the precast to cast-in-place joints; the precast to precast joints; and the window or louver frames to concrete joints (both precast and cast-in-place).

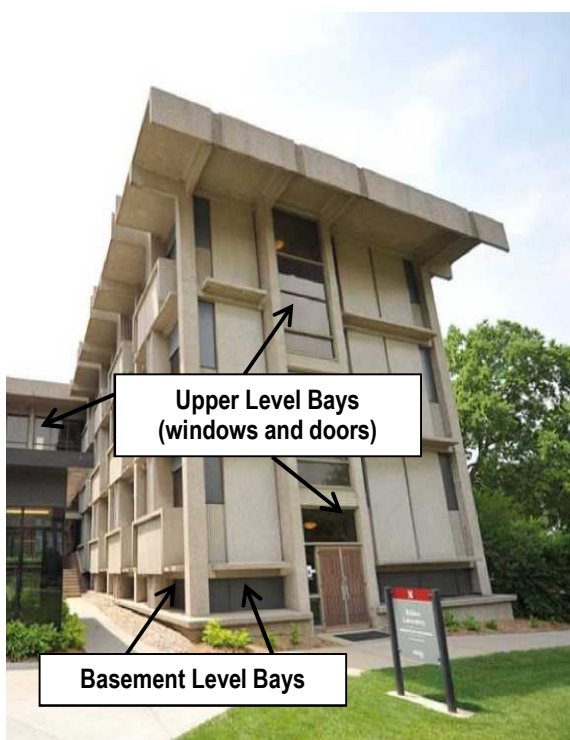
- North and South Elevations (15 bays) – Structural bays on first through third floors of the north and south elevations are arranged in the same manner as those on the east and west elevations. The bays are bordered on the sides by the structural cast-in-place concrete columns and on the top and bottom by the structural horizontal cast-in-place concrete slabs. The bays range from 11 feet wide (3 of the bays on the north elevation) to approximately 20 feet wide (6 on the south and 3 on the north) with three additional south elevation bays being approximately 16 ½ feet wide. The bays are the same height as the bays on the east and west elevations (approximately 13 feet tall). The bays contain flat precast concrete panels with windows in the upper left and right portions of the bays. Caulking containing  $\geq 50$  ppm PCBs is



**North Elevation**

present throughout the bays along the precast to cast-in-place concrete joints and the metal window frame to concrete joints (both precast and cast-in-place).

- Bays Containing Windows and/or Doors
  - Basement Level Bays (15 locations) – Basement level structural bays containing windows are present on all four building elevations. The bays are approximately 20 feet wide and 3 ½ feet tall. They are bordered on the sides by the structural concrete columns, on the top by the first floor slab, and by a second cast-in-place slab on the bottom. On the north and south elevations, a single window spans the distance within the bay between structural columns (approximately 20 feet long). On the east and west elevations, two windows are present within each bay and separated by the vertical precast duct bank in the center of the bay. Windows within each bay are scheduled to be removed. Caulking/sealants containing  $\geq 50$  ppm PCBs are present between the metal window frames to cast-in-place concrete joints and between the glass and frames.
  - Upper Level Stairwell and Connector Bays (15 bays) – Fifteen of the bays on the first through third floors of the north and south elevation contain only windows and/or doors scheduled to be removed (i.e., no precast concrete panels). On the south elevation, there are three bays that are 7'8" wide. On the north elevation, there are 12 bays varying in width from 7'8" to 16 ½ feet. These bays are approximately 13 feet tall. Caulking/sealants containing  $\geq 50$  ppm PCBs are present between frame to concrete joints, between the frame to frame joints, and between the frames and glass.



**North and East Elevations**

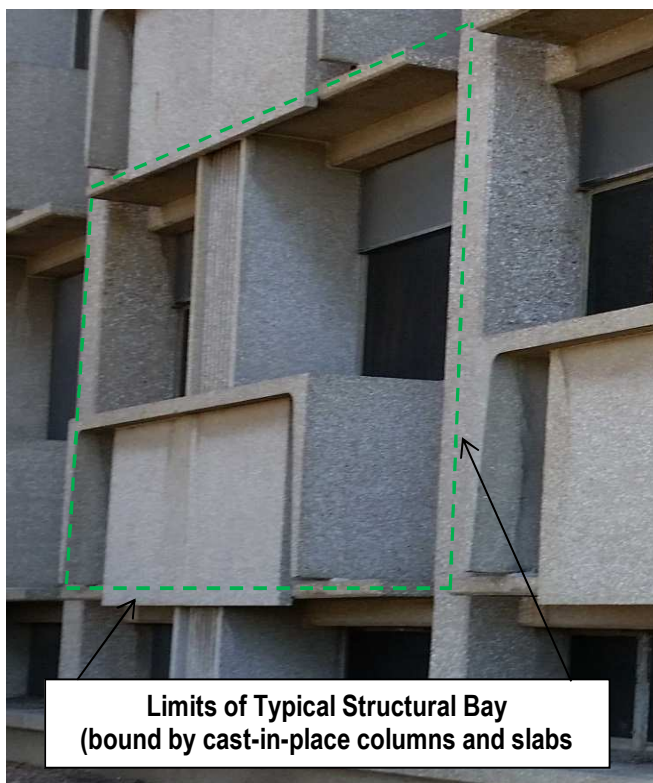


**East and West Elevations**



Due to the configuration of the masonry joints which will make segregation of materials infeasible (see discussion below), building materials scheduled for removal (i.e., caulking/sealants, precast concrete panels, windows, doors, and louvers) within the structural bays will be removed for off-site disposal as PCB Bulk Product Waste. The exception to this is the glass within the windows and doors, which is not in direct contact with PCB containing sealants (two samples of glazing sealants were reported as non-detect for PCBs) and may be segregated for disposal as non-PCB waste depending on the contractor's selected means and methods for removal. If the glass is segregated, then given the limited data collected to date, additional samples of glazing sealants will be collected to verify that PCBs are not present in the sealants prior to segregation for off-site disposal.

The decision to propose the complete removal and disposal of the materials as PCB Bulk Product Waste has been based on a comparison between the labor and disposal costs associated with the complete disposal of the materials as PCB Bulk Product Waste as compared to the labor and schedule impacts associated with waste segregation cut-line and verification sampling that would be required to segregate the materials as either PCB Bulk Product Waste or general demolition debris.



**Typical Structural Bay – East and West Elevations**

As an example, consider a single typical structural bay on the east and west building elevations (as shown in the photograph above). Within each bay, caulking is present along multiple short runs of joints (depending on the specific bay). A significant portion of the caulking is located along short runs of concrete to concrete joints with multiple 90-degree bends (see the photograph to the right) which would require multiple cuts along each joint. Given the total linear footage of the joints (upwards of 10,000 l.f.), the amount of saw cutting for waste segregation of precast concrete quickly exceeds that which would be practical with regard to the overall project schedule and budget. In addition, the number and frequency of verification samples that would be required to confirm the extent of PCB impacts (and thus the division of materials for disposal) would also have significant budgetary and schedule implications, even with an approved alternate Subpart O verification frequency.



**Multiple cuts would be needed due to angles in the caulked joints**

For the non-porous materials in direct contact with  $\geq 50$  ppm caulking (such as ventilation louvers, window frames, and door frames), the schedule impacts and labor associated with the decontamination of these materials is significant when compared to the relative transport and disposal costs due to the limited volume of such materials that will require disposal.

Cast-in-place concrete materials scheduled to remain in place have been demonstrated through limited analytical testing to contain residual PCBs above the high occupancy clean up level of  $\leq 1$  ppm. Because the cast-in-place concrete is structural in nature (floor slabs and vertical columns), removals could expose the metal rebar within the concrete and negatively impact the structural integrity of the building. As such, concrete removal from these areas, aside from surficial in nature, is not a feasible remedial alternative at this building. In addition, due to the age of the building and the linear footage of the caulked joints, the patching of concrete removal areas would be difficult to blend into the surrounding masonry to create the required sound waterproof condition.

As such, the in-place management of residual PCBs through the use of liquid coatings and secondary physical barriers will be implemented for cast-in-place concrete materials scheduled to remain in place. The in-place management of residual levels of PCBs is an interim measure designed to shield impacted materials from the effects of weathering and leaching mechanisms, thereby eliminating potential exposure pathways and mitigating the potential for PCB transfer via direct contact and/or leaching to other media. Accordingly, there will be no resultant exposure to PCBs. The residual PCBs therefore will not present a risk to human health or the environment. This approach is considered an interim measure, and will require proper disposal of any remaining PCBs upon removal of the material or at the time of building demolition.

Given the amount of sampling conducted to date, additional characterization sampling of cast-in-place concrete materials formerly in direct contact with the PCB containing caulking will be collected to verify the extent and concentration of residual PCBs following the removal of the caulking.

Summaries of the remedial approach and the verification program are provided on Tables 3-1 and 3-2, respectively. Details of the remediation of the specific areas are presented in Section 4 (management of removed materials) and Section 5 (in-place management of residual PCBs in concrete).

## **4. MANAGEMENT OF REMOVED MATERIALS**

This section provides a description of the proposed remediation for the caulking, precast concrete panels, windows, doors, and louvers. As described previously, the structural cast-in-place concrete columns and slabs form distinct bays. Materials within each bay including precast concrete panels, windows, doors, and ventilation louvers, are scheduled to be removed as part of the comprehensive renovation, which includes the construction of a new façade for the building. As such, the remediation is basically a materials management program for disposition. As indicated in Section 3, given a project-specific evaluation, all removed materials will be disposed of as a PCB Bulk Product Waste.

### **4.1 SITE PREPARATION, COMMUNICATIONS, AND CONTROLS**

Prior to initiating any of the remediation activities, the following activities will be implemented:

#### **Preparation and Communications**

- A Health & Safety Plan will be developed for the specific work activities to be conducted. Workers will follow applicable Federal and State regulations regarding the work activities, including but not limited to OSHA regulations, fall protection standards, respiratory protection, ladder/scaffolding safety, personal protective equipment, etc.
- Additional notifications and plans required for the work activities will also be prepared and submitted for approval, as needed.
- Prior to initiation and periodically during the work activities, project-related communications with building occupants and contractors will be undertaken on an as needed basis. These communications may include schedule updates regarding disruption to particular areas, restrictions on exterior door use, or significant project updates. It is anticipated that the building will be vacant in the work areas.

#### **Controls**

- Access to the active work areas will be restricted by fencing or barriers and signage with controlled access points.
- To reduce particulate levels and exposures to airborne particulates, a combination of engineering controls (e.g., work zone enclosures, wetting, etc.) and personal protective equipment (PPE) will be implemented as part of the work activities.
- Remediation will be performed under engineering controls appropriate for PCB abatement based on the reported concentrations of PCBs and/or the presence of asbestos. Wet wiping and water misting will be used as a dust suppressant as appropriate.
- Dust monitoring will be conducted in accordance with Appendix D during active dust generating removal activities such as saw cutting of the masonry or the removal of residual caulking following source material removal if methods of removal include the use of tools beyond standard hand tools or electric caulking removal tools and if full containments are not in place.
- Ground cover (polyethylene sheeting or equivalent) will be placed along the building walls to serve as containment for any debris or building materials removed. Any debris collected within the polyethylene enclosures or on ground cover sheeting will be gathered and placed in the appropriate containers at the end of each work day. After use, disposable PPE and poly sheeting used to collect debris will be placed in the appropriate containers for disposal as PCB waste as described in Section 6.

- Wet wiping, spraying, and/or vacuuming of tools and equipment in the work area will be performed at the completion of the work activity. At the completion of the project, any non-disposable equipment and tools that handled PCB material will be decontaminated following the procedures described in 40 CFR 761.79.

PCB remediation activities will be monitored by an independent environmental consultant to document the work activities conducted under this plan.

## **4.2 REMOVAL OF MATERIALS**

All materials within the bays and in direct contact with/attached to/coated by the  $\geq 50$  ppm caulking will be removed along with the caulking for disposal as PCB Bulk Product Waste in accordance with 40 CFR 761.62. This will include the precast panels and all doors, windows, and louvers and their respective components. As indicated previously, the window glass may be segregated, depending on the selected contractor, for disposal as a non-PCB waste.

These materials will be removed using physical and mechanical means and methods that minimize cutting or grinding. Certain materials may need to be resized to meet the selected disposal facility requirements. If required, resizing will be done through physical means such as saw cutting or physical breaking. Following removal and resizing, as required, materials will be transported to the waste storage area. Information regarding waste handling and disposal is provided in Section 6.

Because the remediation includes the complete removal and disposal of these materials, no verification sampling will be conducted (except as described in Section 5 for the cast-in-place concrete).



## **5. IN-PLACE MANAGEMENT OF RESIDUAL PCBS IN CONCRETE**

This section provides a description of the remediation plan for PCB impacted structural concrete scheduled to remain in place. As described in Section 3, each of the structural bays is bordered by cast-in-place structural concrete columns on the sides and by cast-in-place concrete slabs on the top and bottom. A summary of the remediation plan for the cast-in-place concrete is as follows:

- Any residual caulking will be removed through physical methods such as scraping or grinding.
- Cast-in-place concrete containing PCBs > 1 ppm will be encapsulated with liquid coatings.

Details of the remediation activities are provided in the sections below.

### **5.1 RESIDUAL CAULKING REMOVAL**

Following removal of the precast concrete, windows, doors, and ventilation louvers, residual caulking may be present along the sides of the vertical cast-in-place columns and three sides of each of the upper and lower slabs (top, bottom, and outer vertical face). For the purposes of this remediation plan, the cast-in-place concrete surfaces have been divided into three primary groups based on physical location and configuration of the structural bays. A summary of each surface is as follows:

- Vertical Cast-In-Place Columns – With the exception of the 26 basement level bays, the structural bays are approximately 13 feet tall for a total of 26 l.f. of caulking in each bay (as described in Section 3.1, the basement level bays are three feet tall).
- Upper and Lower Horizontal Surfaces of Concrete Slabs – Each of the bays are approximately three feet deep and bordered by cast-in-place concrete slabs on top and bottom. Joints on the upper and lower horizontal surfaces of the concrete slabs vary in length and configuration between the structural bays. For example, within the basement level bays, a single horizontal joint between the slab and the window is present whereas in the upper level bays on the east and west elevations, multiple caulked joints are present between the precast concrete scheduled to be removed and the cast-in-place slab.
- Vertical Face of Concrete Slabs – Within each of the 33 structural bays on the east and west elevations, two caulked joints are present on the six inch tall vertical face of the lower cast-in-place concrete slab where a precast structure is in place (the pilot test was performed on such a joint). Based on an approximate slab thickness of six inches, the total linear footage of caulking on these surfaces is approximately 33 l.f. (or one foot per slab)

Following the establishment of site preparations, communications, and controls as described in Section 4.1, any residual caulking from cast-in-place concrete scheduled to remain will be removed using mechanical methods such as scrapers and grinding wheels for off-site disposal as PCB Bulk Product Waste in accordance with 40 CFR 761.62. Based on the initial characterization data, this initial removal activity will be performed on concrete at the joint and to a distance of two inches away from the joint. If grinding wheels or other electric/powered removal tools are used, they will be equipped with filters to capture dust at the point of generation. Following removal, the areas will be cleaned using a HEPA equipped vacuum and a final wipe with hexane dampened rags (no free liquids to be generated).

As described above, based on the analytical results to date, residual PCBs > 1 ppm may be present in the cast-in-place concrete following removal of the caulking (total PCBs reported at concentrations of 2.25 and 11.3 ppm following pilot test activities) to a distance of two inches from the caulked joints. Following verification sampling, as described in the next section, residual PCB impacts will be managed in-place through the application of liquid coatings and/or secondary physical barriers (e.g., new construction façade materials).

## 5.2 VERIFICATION SAMPLING

Following removal of residual caulking and cleaning of the cast-in-place concrete surfaces, verification samples will be collected from concrete formerly in direct contact with the caulking and from concrete at locations away from the joints. Summaries of the verification sampling programs for the three primary cast-in-place surfaces are as follows:

Former Direct Contact Materials – Samples will be collected from concrete formerly in direct contact with the caulking to establish baseline PCB concentrations for the cast-in-place concrete. Samples will be collected at a frequency of one sample for every four structural bays for a total of 20 samples. The samples will be spatially distributed around the building with a minimum of three to be collected from each elevation and from each of the four types of structural bays. At each bay, the exact location of the sample will be randomly selected as follows:

- The surface to be sampled will be selected (based on the limited number of caulked joints on the vertical face of the horizontal slabs, only three of the twenty samples will be collected from these materials); and
- The location of the sample along the former joints will be randomly selected based on the total linear footage of caulking on that surface.

Results from the former direct contact samples will be used to establish baseline analytical data for the long term monitoring and maintenance program as part of the in-place management of residual PCBs.

Adjacent Concrete Materials – Samples will be collected at select distances from the former caulked joints to determine the extent of PCB impacts > 1 ppm away from the joints (and therefore the required extent of encapsulation). The specific distances away from the caulked joints will vary between the types of surfaces being sampled.

- Vertical Cast-In-Place Columns – Based on a total of 78 structural bays, one verification sample will be collected from every four bays for a total of 20 samples (or approximately 5 samples per elevation). Given that there are more bays on the east and west sides of the building, the distribution between elevations will not be equal; however, a minimum of three samples will be collected from each elevation and from each type of bay.

Based on the results of the pilot test conducted, PCB impacts > 1 ppm are anticipated to be limited to within two inches of the caulked joints. Based on the preliminary conceptual design drawings, portions of the vertical structural columns may be exposed following completion of the façade replacement project. As such, in order to minimize the extent of the required encapsulation, samples will be collected at a distance of one inch away from the joints.

- Horizontal Cast-In-Place Slabs – Verification samples will be collected from the upper horizontal face of the lower concrete slab at a frequency of one sample every four bays for a total of 20 samples. As with the vertical columns, a minimum of three samples will be collected from each elevation and from each type of bay.

Due to the inherent difficulty of sampling from overhead surfaces, all samples will be collected from the upper surface of the lower slab and considered representative of the lower surface of the upper slab as well. The locations of the samples will be randomly selected based on the overall length of joints within the selected bay.

Given the varied configuration of the joints on these surfaces and that the horizontal slabs are anticipated to be completely covered at the end of the façade replacement project, samples will be collected at a distance of six inches from the joints to reduce the potential for additional sampling to be required. Each location will be evaluated to confirm that the sample will be collected at least six inches from any other joints in the bay (this will primarily be an issue within bays on the east and west elevations). The proposed distance away from the joints is based on the assumed ability to apply liquid coatings to a larger portion of the horizontal

surfaces without aesthetic concerns because these surfaces will be covered by building materials and will be inaccessible following the renovation project.

- Vertical Face of Concrete Slabs – Caulking is present on these surfaces in each of the 33 upper level structural bays on the east and west elevations. Based on a total of 66 joints (2 per bay) along the six inch tall vertical face, a total of six samples will be collected (3 samples on each of the east and west elevations).

The location of each sample will be selected randomly by first selecting the bay and then the specific joint within the bay. Samples will be collected at a distance of six inches from the joints based on the planned inaccessibility of these surfaces following completion of the renovation. Each sample will be collected from the center of the vertical face to minimize the potential to damage the corners of the slab. The proposed distance away from the joints is based on the assumed ability to apply liquid coatings to a larger portion of the vertical face without aesthetic concerns because these surfaces will be covered by building materials and will be inaccessible following the renovation project.

Analytical results from the concrete samples will be compared to the high occupancy clean up level as follows:

- Total PCBs  $\leq$  1 ppm – the minimum extent of required encapsulation verified through testing, no additional sampling to be conducted.
- Total PCBs  $>$  1 ppm – additional verification sample may be collected at a greater distance from the former caulked joint and the extent of encapsulation adjusted accordingly to the next verification sample location in both directions; or the extent of encapsulation will be extended to the end of the respective concrete surface.

Bulk samples will be collected in accordance with US EPA Region 1 Standard Operating Procedure for Sampling Porous Media for PCBs (May 2011) using a rotary impact hammer drill to a depth of 0.5 inches and submitted for extraction via EPA method 3540C (Soxhlet extraction) and PCB analysis via EPA method 8082.

### **5.3 IN PLACE MANAGEMENT OF RESIDUAL PCBs**

Residual PCB impacts  $>$  1 ppm will be managed in-place through the application of two coats of liquid epoxy and the installation of secondary physical barriers (planned façade construction materials). The application of the liquid coating will be performed following the removal of the PCB-containing caulking and cleaning of the concrete described previously. During application, access to the work area will remain restricted through the use of barrier markers and signage. Access to the work areas will be through aerial lift, staging, or from the interior of the building.

#### **5.3.1 Application of Liquid Coatings**

Two coats of liquid epoxy coating (Sikagard 62 liquid epoxy coating or equivalent product) will be applied in accordance with the manufacturer's specifications (see Appendix E for product information) as follows:

- Substrate must be clean, sound, and free of surface contaminants.
- Prepare encapsulant in accordance with manufacturer's specifications.
- Apply encapsulant in accordance with manufacturer's specifications for technique, coverage, and mil thickness. Time between coatings shall be in accordance with manufacturer's specifications.
- Adhere to all limitations and cautions for the coating in the manufacturer's printed literature.

Liquid coatings will be applied to cast-in-place concrete materials determined to contain PCBs  $>$  1 ppm through verification sampling. For the purposes of this plan, the encapsulation extent is as follows:

- Vertical Cast-In-Place Columns – Two coats of liquid epoxy coating will be applied to materials formerly in direct contact with and to a minimum distance of one inch from the former caulked joints.

- Horizontal Cast-In-Place Slabs – Two coats of liquid epoxy coating will be applied to materials formerly in direct contact with and to a minimum distance of six inches from the former caulked joints.
- Vertical Face of Concrete Slabs – Two coats of liquid epoxy coating will be applied to materials formerly in direct contact with and to a minimum distance of six inches from the former caulked joints.

Depending on the project requirements, the coatings may be extended beyond the locations of the verification samples (e.g., for aesthetic concerns or for simplicity of application). If results of the verification bulk sampling indicate that residual PCBs > 1 ppm are present in materials not scheduled to be covered by the new façade materials (for example on the vertical concrete columns), alternate liquid coatings (e.g., clear acrylic coatings or sealants) will be evaluated and selected by the project team taking into consideration aesthetics and other considerations.

### 5.3.2 Verification Wipe Sampling

Following application and curing, inspection and verification wipe testing will be conducted. Visual inspection will be conducted to confirm that the application has been conducted to the extent required and to confirm a smooth uniform appearance over the application area. Baseline wipe samples will be collected to evaluate the effectiveness of the encapsulant and establish a baseline for future long term monitoring. Regardless of the extent of the liquid epoxy coating, verification wipe samples will be collected from former direct contact locations (i.e., where the joints were) to evaluate assumed worse-case locations as part of the initial baseline monitoring. Verification wipe samples will be collected from encapsulated materials at the same frequencies as the bulk samples collected from adjacent materials.

Analytical results of the wipe sampling will be evaluated as follows:

- Total PCBs  $\leq 1 \mu\text{g}/100\text{cm}^2$  – no additional activities, façade renovation/construction to be completed per project requirements.
- Total PCBs  $> 1 \mu\text{g}/100\text{cm}^2$  – additional liquid coatings may be applied and follow up wipe sampling conducted and/or the replacement façade materials will be installed to act as final secondary physical barrier.

If the project schedule requires the installation of new façade construction prior to receipt of the verification wipe sampling results, the results will still be compared to the above criteria; however, if results indicated PCBs  $> 1 \mu\text{g}/100\text{cm}^2$  are present, the replacement frames will be utilized as a final secondary physical barrier.

Verification wipe samples will be collected in accordance with the standard wipe test method of 40 CFR 761.123 and submitted for extraction by EPA method 3540C (Soxhlet extraction) and PCB analysis via EPA method 8082.

Following completion of the encapsulation, the materials will be incorporated into a long-term monitoring and maintenance program as described in Section 7.

The sampling described above will be applied to epoxy coated materials scheduled to be inaccessible at project completion. If it is determined that coatings are required for materials that will be accessible at the completion of the renovation, baseline wipe samples will be collected from those surfaces at the same frequencies following project completion for the purposes of transitioning into the long term monitoring program.

## 6. WASTE STORAGE AND DISPOSAL

Wastes generated as part of the remediation activities will be managed for off-site disposal as follows:

- PCB Bulk Product Wastes – Caulking identified as containing  $\geq 50$  ppm PCBs as well as building materials coated by/in direct contact with the caulking and scheduled to be removed will be removed collectively and managed as a single waste stream for off-site disposal in accordance with 40 CFR 761.62 (this includes precast concrete and window, door, and louver frames and components).
- $< 50$  ppm PCB Remediation Wastes – After removing loose debris, disposable polyethylene sheeting, PPE, non-liquid cleaning materials, and disposable tools and equipment generated as part of the PCB remediation will be managed and disposed of as  $< 50$  ppm PCB Remediation waste in accordance with 40 CFR 761.61(a)(5)(v).

The following activities will be completed with regard to the proper storage and disposal of PCB wastes:

- Secure, lined, and covered waste containers (roll-off containers or equivalent), 55-gallon DOT-approved steel containers, or cubic yard boxes/totes will be staged for the collection of PCB wastes generated during the work activities in accordance with 40 CFR 761.65.
- Containers will be properly labeled and marked in accordance with 40 CFR 761.40.
- Upon completion of the work, or when a container is considered full, PCB wastes will be transported off-site for disposal to a facility permitted to accept such material.
- At the end of their use on the project, non-disposable tools and equipment will be decontaminated in accordance with 40 CFR 761.79. While not anticipated, decontamination fluids generated during the work will be collected/contained and managed/disposed in accordance with 40 CFR 761.79.

Copies of the waste shipment records, including manifests and certificates of disposal, will be collected and provided as part of the final report to EPA.

## **7. CONCEPTUAL LONG TERM MONITORING AND MAINTENANCE**

As described in this Plan, the planned renovation includes the implementation of an alternate remedial approach under 40 CFR 761.61(c), including the in-place management of PCB-impacted building materials. This approach utilizes a physical barrier approach (liquid coating and physical barriers) to eliminate the direct contact exposure pathway and migration pathways of PCBs remaining on the building. Upon completion of the remedial actions, the impacted material will not be accessible for direct exposure or migration to surrounding building materials.

A monitoring and maintenance plan (MMP) will be developed and implemented to monitoring the effectiveness of the encapsulating barriers. The main components of the MMP will be as follows:

- Visual inspections – Visual inspections of the encapsulated surfaces will be conducted. All inspections will be recorded and included in a report to the EPA. The inspections will consist of an assessment of the following:
  - Signs of the underlying coating, or excessive pitting, peeling, or breakages in the coating, if visible;
  - Signs of weathering or disturbance of the replacement caulking (where applied); and
  - A general inspection of the façade materials.
- Monitoring – Materials included in the long term monitoring that are not covered with physical barriers will be monitored through the collection of verification wipe samples (it is currently anticipated that all encapsulated materials will be covered by the replacement façade materials).
- Corrective Actions – If results of the inspections indicate that damage has occurred to a component of the barrier system, the needed repairs will be conducted.
- Maintenance Guidelines and Procedures – It is not anticipated that workers or building occupants will come into routine contact with the encapsulated materials; however, to prevent potential exposure to maintenance and facility personnel that may perform activities in encapsulated areas, guidelines and procedures will be developed and implemented for any work being conducted in the respective encapsulated areas. These guidelines and procedures will detail communication procedures, worker protection requirements, and worker training requirements to be conducted for maintenance or other activities in these areas.
- Reporting – A report documenting the findings of the monitoring will be prepared and submitted to EPA.

The results of the verification testing, baseline sampling, and inspections will be used to develop the details of the plan following completion of the remediation activities. The MMP will be provided to EPA under a separate submittal following the completion of the remedial activities.

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## 8. PROJECT SCHEDULE AND RESTORATION

The renovations are currently scheduled to begin in 2015.

Following completion of the removal activities and verification that the cleanup levels have been met or the risk-based encapsulation approach applied, the building surfaces will be restored in accordance with the renovation project design specifications. The site controls will be dismantled and all wastes will be transported off-site for proper disposal. If required, monitoring and maintenance of the in-place materials will be implemented in accordance with the monitoring plan to be developed at the completion of the renovation project.

## **9. RECORDKEEPING AND DOCUMENTATION**

Following completion of the work activities, records and documents per 40 CFR Part 761 will be generated and maintained at one location. A final report documenting the completion of the work activities, verification analytical results, volumes of disposed materials, and waste disposal records will be prepared and submitted to EPA.

Based on the characterization data collected to date and the proposed remedial approach, it is anticipated that PCBs above the 1 ppm unrestricted use cleanup level will remain at the building upon completion of the remedial activities proposed herein. As required under 40 CFR 761.61(a)(8)(i)(B), UNL shall submit to EPA a signed certification, that a notation on the deed has been recorded upon completion of the remediation activities described in this Plan. The deed notation shall include the following:

- A description of the extent and levels of PCBs remaining at the building following remediation;
- A description of the PCB remedial actions performed at the building;
- A description of the use restrictions for the building; and
- The long-term monitoring and maintenance requirements.



Table 2-1

**Summary of Caulking/Sealant Characterization Sampling Results  
Behlen Laboratory - University of Nebraska, Lincoln**

|  | Location and Physical Description  | Sample ID | Sample Date | Total PCBs<br>(mg/kg) |
|--|--|-----------|-------------|-----------------------|
| <b>Building Masonry Caulking</b>   |  |           |             |                       |
| Exterior Masonry Caulking along Pre-Cast to Cast-In-Place<br>Concrete Joints | Exterior Caulking Around Structural Components                           | ESC-1     | 7/14/2014   | 1,520                 |
|  | South Side of Building, Grey Caulking (location of pilot test abatement) | BS        | 11/6/2014   | 4,600                 |
|  | East Side of Building, Grey Caulking                                     | BE        | 11/6/2014   | 4,800 J               |
|  | West Side of Building, Grey Caulking                                     | BW        | 11/6/2014   | 4,800 J               |
| <b>Window Caulking and Sealants</b>  |  |           |             |                       |
| Exterior Frame to Masonry Caulking   | Exterior Caulking Around Window Frame                                    | EWC-1     | 7/14/2014   | 1,740                 |
|  | Basement Level Window Caulking, Dark Brown Caulking                      | BB        | 11/6/2014   | 1,200                 |
| Interior Frame to Masonry Caulking   | North Side of Link, First Floor, Tan Caulking                            | PCB-01    | 11/10/2014  | 62.73                 |
|  | South East Stairwell, First Floor, Tan Caulking                          | PCB-02    | 11/10/2014  | 33.2                  |
|  | Interior Caulking Between Frame and Interior Wall                        | IWS-1     | 7/14/2014   | < 1.980               |
| Glazing Sealants   | Exterior Window Glazing  | EWG-1     | 7/14/2014   | < 1.980               |
|  | Interior Window Glazing  | IWG-1     | 7/14/2014   | < 1.980               |
| Interior Frame Caulking  | Interior Window Sealant Integral to Frame Components                     | ISC-1     | 7/14/2014   | < 1.980               |
| <b>Miscellaneous Caulking</b>  |  |           |             |                       |
| Interior Door Caulking   | Door To Room 360, Hall Side, Tan Caulking                                | PCB-03    | 11/10/2014  | 1.71                  |
|  | Door to Room 254, Hall Side, Tan Caulking                                | PCB-04    | 11/10/2014  | 2.098 J               |
|  | North Door to Room 265A, Room Side, Tan Caulking                         | PCB-05    | 11/10/2014  | 2.851                 |
| Ductwork Sealants  | Duct Above Door in Room 265B, Gray Sealant                               | PCB-06    | 11/10/2014  | < 0.376               |
|  | Duct Above Ceiling in Hall outside 2nd Floor Restroom, Tan Sealant       | PCB-08    | 11/10/2014  | < 0.482 UJ            |
| Concrete Walkway Caulking  | North Entrance Area Walkway  | BSW       | 11/6/2014   | < 0.81                |

## Notes:

Samples collected in accordance with standard environmental field sampling practices extracted via method 3540C or 3550C and analyzed for PCBs via USEPA method 8082.

Total PCBs reported as Aroclors 1242, 1248, 1254 and/or 1260. No other Aroclors reported at concentrations above the laboratory minimum reporting limit.

J/UJ = Analytical results qualified as estimated based on data validation. See Appendix B for additional information.

Table 2-2

**Summary of Concrete Sampling Results**  
**Behlen Laboratory - University of Nebraska, Lincoln**

|  | Location  | Sample ID | Sample Date | Total PCBs<br>(mg/kg) |
|--|---|-----------|-------------|-----------------------|
| <b>Cast-In-Place Concrete At Former Caulking Joint</b> |   |           |             |                       |
| Vertical Face of Cast-In-Place Concrete                | Collected following caulking removal and removal of 0.25 to 0.5 inches of concrete with hammer chisel | BVC       | 11/13/2014  | 2.25                  |
| Horizontal Face of Cast-In-Place Concrete              | Collected following caulking removal and removal of 0.25 to 0.5 inches of concrete with hammer chisel | BHS       | 11/13/2014  | 11.3                  |
| <b>Concrete Away from the Former Caulking Joint</b>    |   |           |             |                       |
| Cast-In-Place Concrete                                 | Collected from 0.25 to 0.75 inches from caulked joint   | BLSC      | 9/4/2014    | 54                    |
|  | Collected at a distance of 2 inches from the vertical caulking seam                                   | BVD       | 11/13/2014  | 0.78 J                |
| Precast Concrete                                       | Collected from 0.25 to 0.75 inches from caulked joint   | BLEC      | 9/4/2014    | 0.15                  |

## Notes:

Samples collected on September 4, 2014 were collected using a grinding wheel. Samples collected on November 13, 2014 were collected in accordance with EPA Region 1 Standard Operating Procedure for sampling Porous Media for PCBs (May 2011) using a rotary impact hammer drill to a depth of 0.5 inches.

Samples analyzed for PCBs via USEPA method 8082 with Soxhlet Extraction (3540C).

Total PCBs reported as Aroclor 1242, 1248, 1254, and/or 1260. No other Aroclors reported at concentrations above the minimum laboratory reporting limits.

J = Analytical results qualified as estimated based on data validation. See Appendix B for additional information.

**Table 3-1**

**Summary of Proposed Remedial Activities  
Behlen Laboratory - University of Nebraska, Lincoln**

| <b>Materials</b>  | <b>Characterization Sample Summary</b>   | <b>Planned Remediation</b>  |
|---|--|---|
| Caulking/Sealants,<br>Precast Concrete,<br>Windows, Doors,<br>Ventilation Louvers | Total PCBs reported in caulking along concrete to concrete masonry joints and perimeter window frame to concrete joints at concentrations up to 4,800 ppm. | Remove all materials within the limits of the structural bays (caulking, precast concrete materials, window/door frames and components, ventilation louvers) for off-site disposal as PCB Bulk Product Waste.<br><br>Additional information is presented in Section 4.  |
| Cast-In-Place<br>Concrete   | Total PCBs reported in caulking along concrete to concrete masonry joints and perimeter window frame to concrete joints at concentrations up to 4,800 ppm. | Cast-In-Place concrete materials containing residual PCBs > 1 ppm to be managed in-place through the application of two coats of liquid epoxy coating and replacement facade materials.<br><br>Additional characterization and post-removal verification samples of cast-in-place masonry to be collected to: 1) establish baseline PCB concentrations in concrete following caulking removal; and 2) determine lateral extent of PCBs > 1 ppm to determine required extent of encapsulation. Verification/baseline wipe samples of coated surfaces to be collected to establish baseline monitoring data for encapsulated surfaces.<br><br>Additional information is presented in Section 5. |

**Notes:**

Extent of building materials subject to remediation to be determined through verification sampling as described on Table 3-2.

Table 3-2

**Summary of Proposed Verification Sampling Plan  
Behlen Laboratory - University of Nebraska, Lincoln**

| Work Area   | Sample Type   | Sample Location   | Sample Rationale  | Sample Frequency   | Total Number Samples |
|---|---|---|---|--|----------------------|
| Bulk Samples  |   |   |   |  |                      |
| Precast Concrete, Windows, Doors, Louvers Scheduled to be removed | All materials to be removed for disposal as PCB Bulk Product Waste as a single waste stream without segregation; therefore, no samples warranted. |   |   |  |                      |
| Cast-In-Place Concrete - Verification Sampling                    | All Surfaces - Former Direct Contact Materials  | Former Direct Contact Materials                             | Samples collected to establish baseline data for encapsulated materials.<br>Samples collected from randomly selected locations.   | 1 sample per 4 structural bays   | 20                   |
|   | Vertical Columns  | 1" from the joint   | Samples collected to determine the extent of PCB impacts > 1 ppm.<br>Location away from the joint selected to minimize the required extent of encapsulation.  | 1 sample per 4 structural bays<br>- min. of 3 per elevation<br>- min. of 3 per type of bay | 20                   |
|   | Upper Horizontal Surfaces of Slabs  | 6" from the joint   | Samples collected to determine the extent of PCB impacts > 1 ppm.<br>Location away from the joint selected to reduce potential for additional sampling and based on assumption that all materials to be inaccessible at project completion. | 1 sample per 4 structural bays<br>- min. of 3 per elevation<br>- min. of 3 per type of bay | 20                   |
|   | Vertical Face of Slabs  | 6" from the joint   | Samples collected to determine the extent of PCB impacts > 1 ppm.<br>Location away from the joint selected to reduce potential for additional sampling and based on assumption that all materials to be inaccessible at project completion. | 3 samples per elevation  | 6                    |
| Wipe Samples  |   |   |   |  |                      |
| Vertical Cast-In-Place Columns                                    | At Former Joint Location  | Samples collected to establish baseline wipe sampling data. | 1 sample per 4 structural bays<br>- min. of 3 per elevation<br>- min. of 3 per type of bay  | 20   |                      |
| Horizontal Surfaces of Cast-In-Place Slabs                        | At Former Joint Location  |   | 1 sample per 4 structural bays<br>- min. of 3 per elevation<br>- min. of 3 per type of bay  | 20   |                      |
| Vertical Face of Cast-In-Place Slabs                              | At Former Joint Location  |   | 3 samples per elevation   | 6  |                      |

## Notes:

Bulk samples to be collected in accordance with EPA Region 1 SOP for Sampling Porous Surfaces for PCBs (May 2011)

Wipe samples to be collected in accordance with the standard wipe test method of 40 CFR 761.123 with a hexane-saturated gauze.

## **APPENDIX A: WRITTEN CERTIFICATION**



## Certification

Project            Behlen Laboratory  
                         500 Stadium Drive  
                         Lincoln, NE

The undersigned owner of the property where the cleanup site is located and the party conducting the cleanup certify that all sampling plans, sampling collection procedures, sample preparation procedures, extraction procedures and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site, are on file at the location indicated below and are available for EPA inspection, as set forth below.

Document Location

University of Nebraska, Lincoln  
Environmental Health and Safety Office  
3630 East Campus Loop  
Lincoln, NE 68583

**Property Owner and Party Conducting the Cleanup**

Brenda Osthus  
Authorized Signature

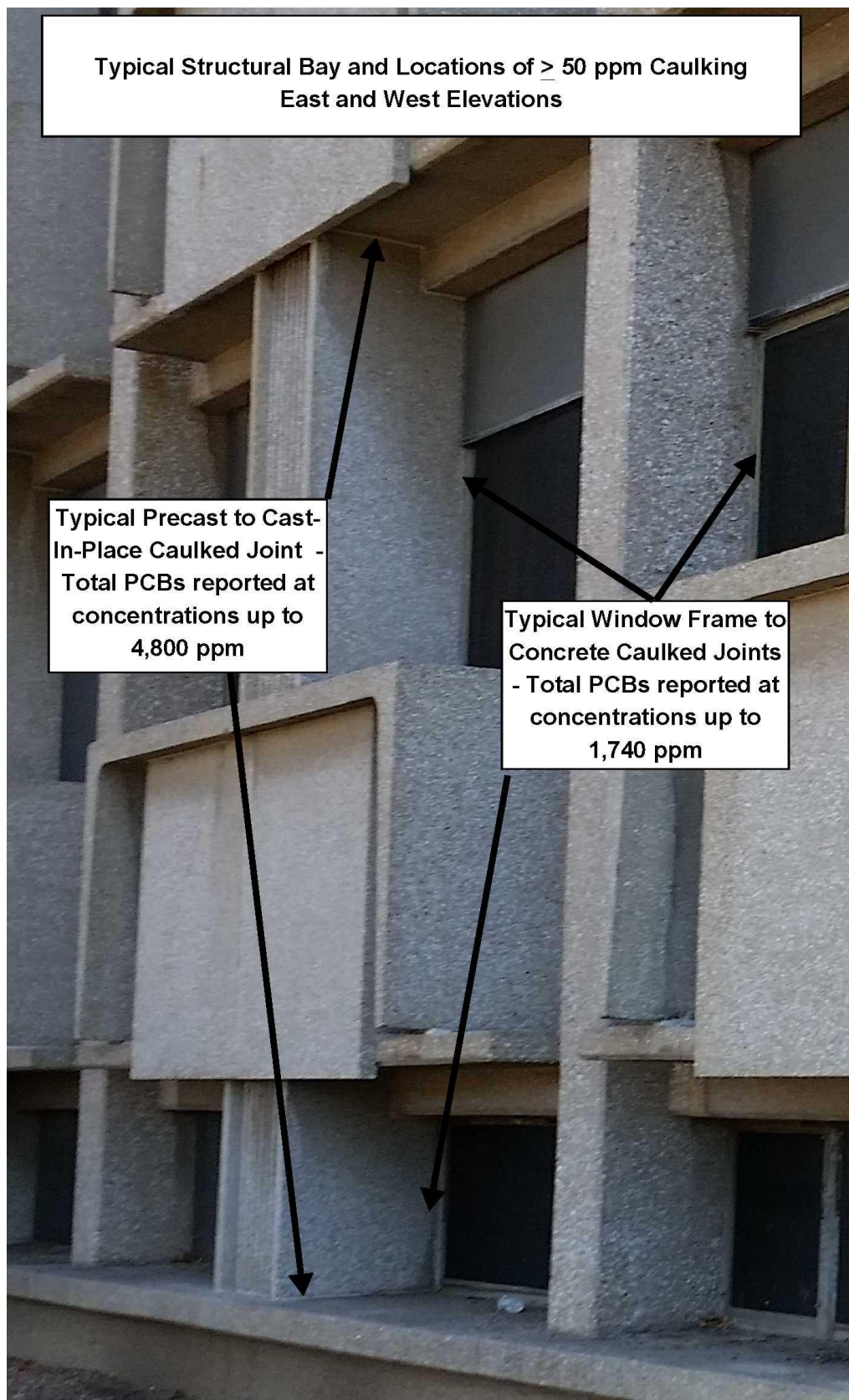
12-18-2014  
Date

Brenda Osthus  
Name of Authorized representative (print)

EHS Director  
Title

## **APPENDIX B: REPRESENTATIVE SAMPLE LOCATIONS**

## APPENDIX B



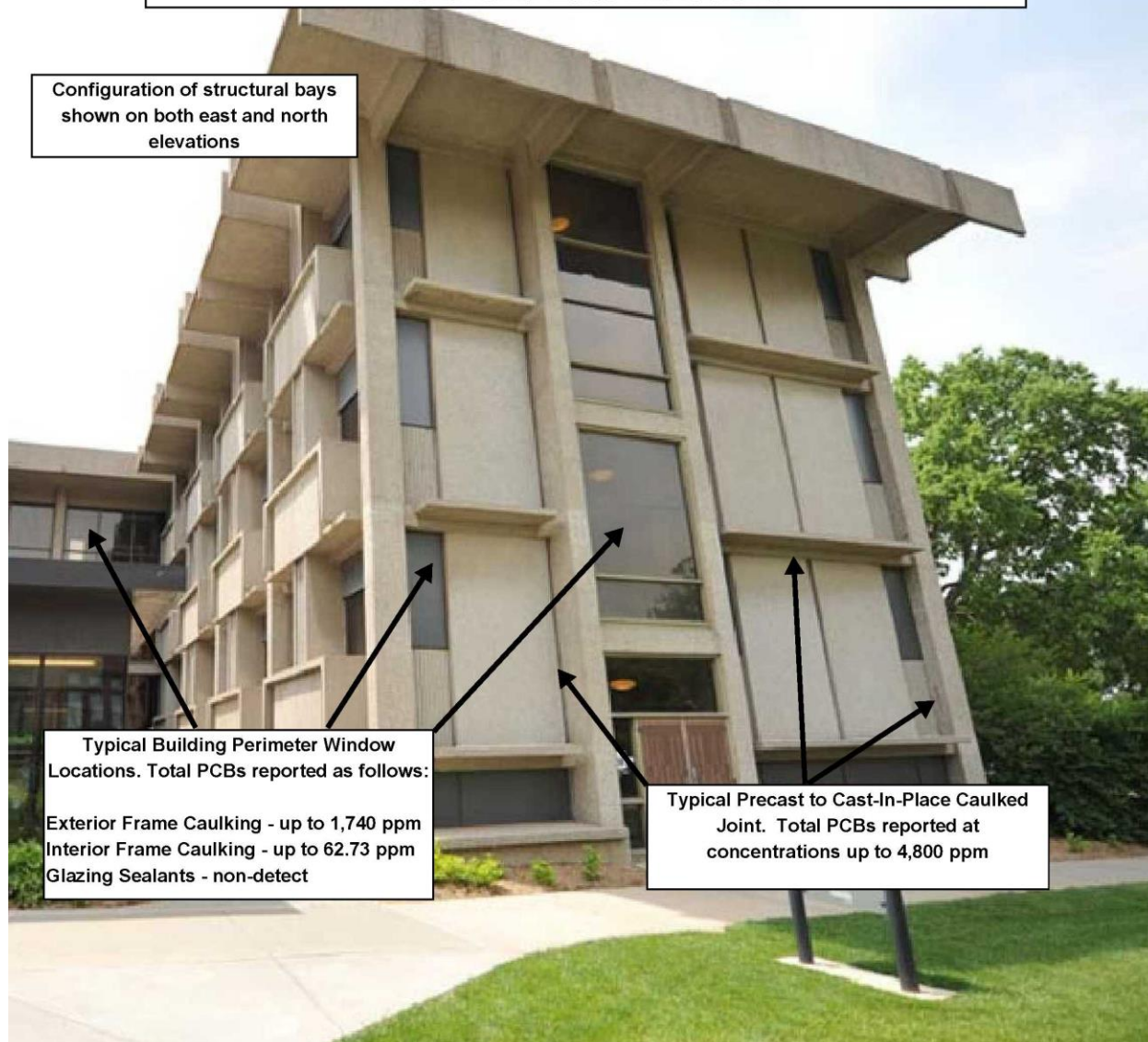


## APPENDIX B

### Configuration of Structural Bays and Locations of $\geq 50$ ppm Caulking

#### North and East Elevations

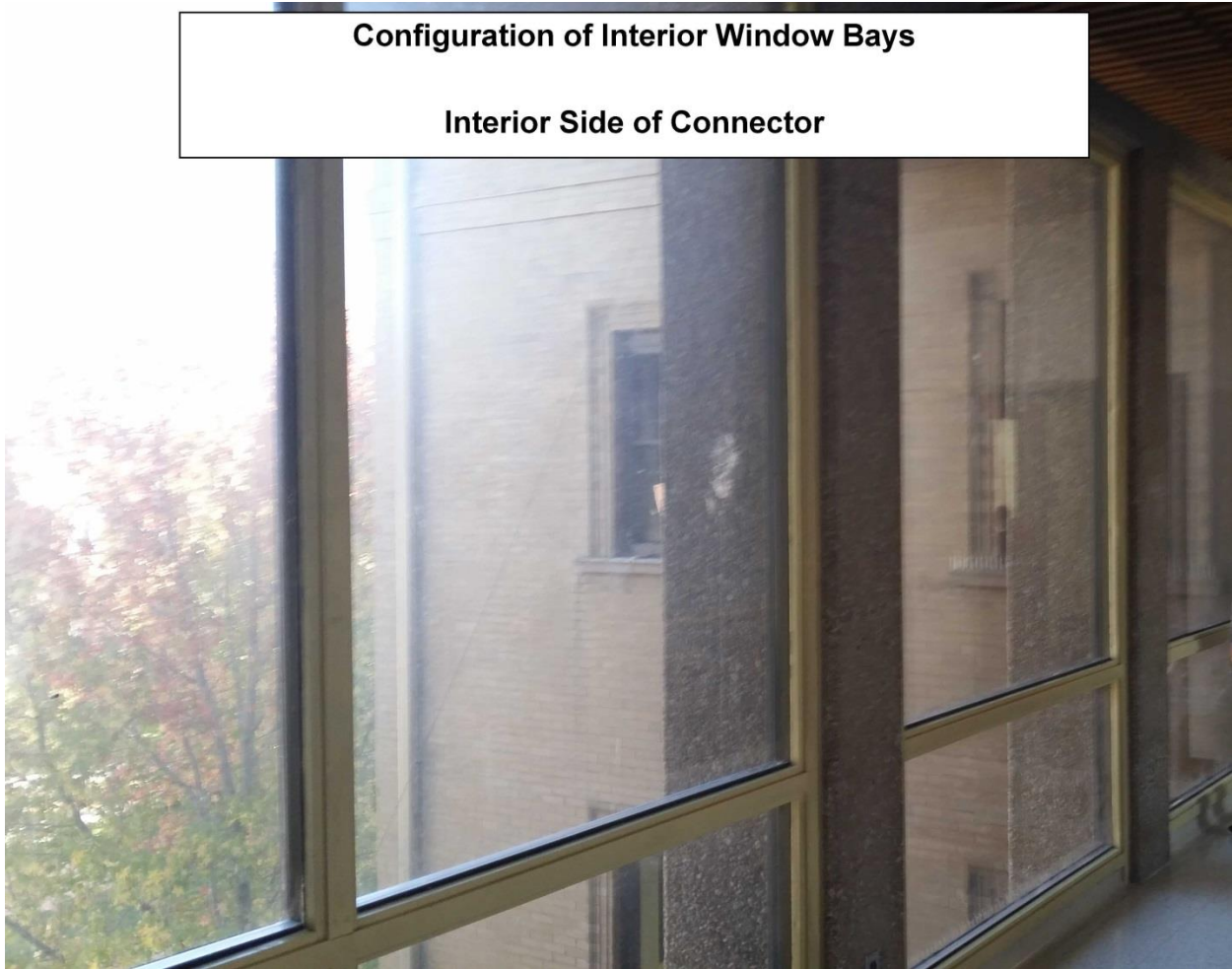
Configuration of structural bays shown on both east and north elevations



## APPENDIX B

### Configuration of Interior Window Bays

#### Interior Side of Connector



## **APPENDIX C: ANALYTICAL LABORATORY REPORTS AND DATA VALIDATION SUMMARY**

Report Number  
14-220-2023



Page 1 of 4

**Mail to:** **UNIV OF NE ENV HEALTH & SAFETY**  
**SHERRI ALEXANDER**  
**3630 EC LOOP**  
**LINCOLN NE 68583-**

**REPORT OF ANALYSIS**

For: ( 6687) **UNIV OF NE ENV HEALTH & SAFETY**  
(402)472-0264

Date Reported: 08/08/14  
Date Received: 07/14/14  
Date Sampled: 07/14/14  
Time Sampled: 0930

**BEHLEN WINDOWS**

Lab number: 2293374

| Analysis                | Level Found | Units | Detection Limit | Method   | Analyst-Date | Verified-Date |
|-------------------------|-------------|-------|-----------------|----------|--------------|---------------|
| <u>Sample ID: EWC-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 198,000         | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1254            | 1,740,000   | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| <u>Sample ID: EWG-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 1,980           | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1254            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |



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# REPORT OF ANALYSIS

Account: 6687 UNIV OF NE ENV HEALTH & SAFETY Report Number: 14-220-2023

| Analysis                | Level Found | Units | Detection Limit | Method   | Analyst-Date | Verified-Date |
|-------------------------|-------------|-------|-----------------|----------|--------------|---------------|
| <u>Sample ID: ESC-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 198,000         | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1254            | 1,520,000   | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 99,000          | EPA 8082 | nmh-08/07    | amw-08/08     |
| <u>Sample ID: IWS-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 1,980           | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1254            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |



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### REPORT OF ANALYSIS

Account: 6687 UNIV OF NE ENV HEALTH & SAFETY Report Number: 14-220-2023

| Analysis                | Level Found | Units | Detection Limit | Method   | Analyst-Date | Verified-Date |
|-------------------------|-------------|-------|-----------------|----------|--------------|---------------|
| <u>Sample ID: IWG-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 1,980           | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1254            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| <u>Sample ID: ISC-1</u> |             |       |                 |          |              |               |
| Aroclor 1016            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1221            | n.d.        | µg/kg | 1,980           | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1232            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1242            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1248            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1254            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1260            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1262            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |
| Aroclor 1268            | n.d.        | µg/kg | 990             | EPA 8082 | nmh-07/18    | amw-08/08     |

Notes:

n.d. - Not Detected.

For questions contact

  
Heather Ramig  
Client Service Representative  
heather.ramig@midwestlabs.com (402)829-9891





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September 10, 2014

Joel Webb  
Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507

Project Location: Behlen Hall  
Client Job Number:  
Project Number: [none]  
Laboratory Work Order Number: 14I0253

Enclosed are results of analyses for samples received by the laboratory on September 8, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Nicole L. St. Martin  
Project Manager



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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507  
ATTN: Joel Webb

REPORT DATE: 9/10/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

**ANALYTICAL SUMMARY**

WORK ORDER NUMBER: 14I0253

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Behlen Hall

| FIELD SAMPLE #    | LAB ID:    | MATRIX        | SAMPLE DESCRIPTION | TEST         | SUB LAB |
|-------------------|------------|---------------|--------------------|--------------|---------|
| BLEC (Exterior)   | 14I0253-01 | Product/Solid |                    | SW-846 8082A |         |
| BLSC (Structural) | 14I0253-02 | Product/Solid |                    | SW-846 8082A |         |

### CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

#### Qualifications:

S-01

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

#### Analyte & Samples(s) Qualified:

##### Decachlorobiphenyl

14I0253-02[BLSC (Structural)]

##### Decachlorobiphenyl [2C]

14I0253-02[BLSC (Structural)]

##### Tetrachloro-m-xylene

14I0253-02[BLSC (Structural)]

##### Tetrachloro-m-xylene [2C]

14I0253-02[BLSC (Structural)]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Daren J. Damboragian  
Laboratory Manager

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen Hall

Sample Description:

Work Order: 1410253

Date Received: 9/8/2014

Field Sample #: BLEC (Exterior)

Sampled: 9/4/2014 00:00

Sample ID: 1410253-01

Sample Matrix: Product/Solid

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units     | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1221 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1232 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1242 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1248 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1254 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1260 [2]         | 0.15       | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1262 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Aroclor-1268 [1]         | ND         | 0.091           | mg/Kg     | 1        |           | SW-846 8082A | 9/8/14        | 9/10/14 11:33      | KAL     |
| Surrogates               | % Recovery | Recovery Limits | Flag/Qual |          |           |              |               |                    |         |
| Decachlorobiphenyl [1]   | 95.7       | 30-150          |           |          |           |              |               | 9/10/14 11:33      |         |
| Decachlorobiphenyl [2]   | 96.8       | 30-150          |           |          |           |              |               | 9/10/14 11:33      |         |
| Tetrachloro-m-xylene [1] | 90.9       | 30-150          |           |          |           |              |               | 9/10/14 11:33      |         |
| Tetrachloro-m-xylene [2] | 90.1       | 30-150          |           |          |           |              |               | 9/10/14 11:33      |         |

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Project Location: Behlen Hall

Sample Description:

Work Order: 1410253

Date Received: 9/8/2014

Field Sample #: BLSC (Structural)

Sampled: 9/4/2014 00:00

Sample ID: 1410253-02

Sample Matrix: Product/Solid

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1221 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1232 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1242 [2]         | 54         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1248 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1254 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1260 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1262 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Aroclor-1268 [1]         | ND         | 4.8             | mg/Kg | 50       |           | SW-846 8082A | 9/8/14        | 9/10/14 12:25      | KAL     |
| Surrogates               | % Recovery | Recovery Limits |       |          | Flag/Qual |              |               |                    |         |
| Decachlorobiphenyl [1]   | *          | 30-150          |       |          | S-01      |              |               | 9/10/14 12:25      |         |
| Decachlorobiphenyl [2]   | *          | 30-150          |       |          | S-01      |              |               | 9/10/14 12:25      |         |
| Tetrachloro-m-xylene [1] | *          | 30-150          |       |          | S-01      |              |               | 9/10/14 12:25      |         |
| Tetrachloro-m-xylene [2] | *          | 30-150          |       |          | S-01      |              |               | 9/10/14 12:25      |         |

---

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

**Sample Extraction Data**

**Prep Method: SW-846 3540C-SW-846 8082A**

| Lab Number [Field ID]          | Batch   | Initial [g] | Final [mL] | Date     |
|--------------------------------|---------|-------------|------------|----------|
| 14I0253-01 [BLEC (Exterior)]   | B104441 | 2.20        | 10.0       | 09/08/14 |
| 14I0253-02 [BLSC (Structural)] | B104441 | 2.10        | 10.0       | 09/08/14 |

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### QUALITY CONTROL

#### Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

#### Batch B104441 - SW-846 3540C

##### Blank (B104441-BLK1)

Prepared: 09/08/14 Analyzed: 09/10/14

|                                      |       |      |       |      |  |      |        |  |  |  |
|--------------------------------------|-------|------|-------|------|--|------|--------|--|--|--|
| Aroclor-1016                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1016 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1221                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1221 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1232                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1232 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1242                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1242 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1248                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1248 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1254                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1254 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1260                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1260 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1262                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1262 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1268                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1268 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Surrogate: Decachlorobiphenyl        | 1.06  |      | mg/Kg | 1.00 |  | 106  | 30-150 |  |  |  |
| Surrogate: Decachlorobiphenyl [2C]   | 1.08  |      | mg/Kg | 1.00 |  | 108  | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene      | 0.683 |      | mg/Kg | 1.00 |  | 68.3 | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.685 |      | mg/Kg | 1.00 |  | 68.5 | 30-150 |  |  |  |

##### LCS (B104441-BS1)

Prepared: 09/08/14 Analyzed: 09/10/14

|                                      |       |      |       |       |  |      |        |  |  |  |
|--------------------------------------|-------|------|-------|-------|--|------|--------|--|--|--|
| Aroclor-1016                         | 0.25  | 0.10 | mg/Kg | 0.250 |  | 101  | 40-140 |  |  |  |
| Aroclor-1016 [2C]                    | 0.24  | 0.10 | mg/Kg | 0.250 |  | 95.7 | 40-140 |  |  |  |
| Aroclor-1260                         | 0.25  | 0.10 | mg/Kg | 0.250 |  | 101  | 40-140 |  |  |  |
| Aroclor-1260 [2C]                    | 0.25  | 0.10 | mg/Kg | 0.250 |  | 100  | 40-140 |  |  |  |
| Surrogate: Decachlorobiphenyl        | 1.06  |      | mg/Kg | 1.00  |  | 106  | 30-150 |  |  |  |
| Surrogate: Decachlorobiphenyl [2C]   | 1.07  |      | mg/Kg | 1.00  |  | 107  | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene      | 0.931 |      | mg/Kg | 1.00  |  | 93.1 | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.920 |      | mg/Kg | 1.00  |  | 92.0 | 30-150 |  |  |  |

##### LCS Dup (B104441-BS1)

Prepared: 09/08/14 Analyzed: 09/10/14

|                                      |       |      |       |       |  |      |        |      |    |  |
|--------------------------------------|-------|------|-------|-------|--|------|--------|------|----|--|
| Aroclor-1016                         | 0.23  | 0.10 | mg/Kg | 0.250 |  | 90.3 | 40-140 | 10.8 | 30 |  |
| Aroclor-1016 [2C]                    | 0.21  | 0.10 | mg/Kg | 0.250 |  | 85.8 | 40-140 | 10.9 | 30 |  |
| Aroclor-1260                         | 0.24  | 0.10 | mg/Kg | 0.250 |  | 95.6 | 40-140 | 5.94 | 30 |  |
| Aroclor-1260 [2C]                    | 0.24  | 0.10 | mg/Kg | 0.250 |  | 95.3 | 40-140 | 5.27 | 30 |  |
| Surrogate: Decachlorobiphenyl        | 0.975 |      | mg/Kg | 1.00  |  | 97.5 | 30-150 |      |    |  |
| Surrogate: Decachlorobiphenyl [2C]   | 0.998 |      | mg/Kg | 1.00  |  | 99.8 | 30-150 |      |    |  |
| Surrogate: Tetrachloro-m-xylene      | 0.706 |      | mg/Kg | 1.00  |  | 70.6 | 30-150 |      |    |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.700 |      | mg/Kg | 1.00  |  | 70.0 | 30-150 |      |    |  |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**BLEC (Exterior)**

Lab Sample ID: 14I0253-01 Date(s) Analyzed: 09/10/2014 09/10/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D  |
|--------------|-----|------|-----------|------|---------------|-----|
|              |     |      | FROM      | TO   |               |     |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.14          |     |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.15          | 5.5 |



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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**BLSC (Structural)**

Lab Sample ID: 14I0253-02 Date(s) Analyzed: 09/10/2014 09/10/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1242 | 1   | 0.00 | 0.00      | 0.00 | 46            |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 54            | 16.6 |

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## IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

*SW-846 8082A*

LCS

Lab Sample ID: B104441-BS1 Date(s) Analyzed: 09/10/2014 09/10/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 0.25          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.24          | 5  |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.25          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.25          | 2  |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

LCS Dup

Lab Sample ID: B104441-BSD1 Date(s) Analyzed: 09/10/2014 09/10/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 0.23          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.21          | 7  |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.24          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.24          | 0  |

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**FLAG/QUALIFIER SUMMARY**

- \* QC result is outside of established limits.
  - † Wide recovery limits established for difficult compound.
  - ‡ Wide RPD limits established for difficult compound.
  - # Data exceeded client recommended or regulatory level
- Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
- No results have been blank subtracted unless specified in the case narrative section.
- S-01 The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

# CERTIFICATIONS

## Certified Analyses included in this Report

| Analyte                              | Certifications       |
|--------------------------------------|----------------------|
| <i>SW-846 8082A in Product/Solid</i> |                      |
| Aroclor-1016                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1016 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1221                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1221 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1232                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1232 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1242                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1242 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1248                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1248 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1254                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1254 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1260                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1260 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

| Code | Description                                  | Number        | Expires    |
|------|--|---------------|------------|
| AIHA | AIHA-LAP, LLC                                | 100033        | 02/1/2016  |
| MA   | Massachusetts DEP                            | M-MA100       | 06/30/2015 |
| CT   | Connecticut Department of Public Health      | PH-0567       | 09/30/2015 |
| NY   | New York State Department of Health          | 10899 NELAP   | 04/1/2015  |
| NH-S | New Hampshire Environmental Lab              | 2516 NELAP    | 02/5/2015  |
| RI   | Rhode Island Department of Health            | LAO00112      | 12/30/2014 |
| NC   | North Carolina Div. of Water Quality         | 652           | 12/31/2014 |
| NJ   | New Jersey DEP                               | MA007 NELAP   | 06/30/2015 |
| FL   | Florida Department of Health                 | E871027 NELAP | 06/30/2015 |
| VT   | Vermont Department of Health Lead Laboratory | LL015036      | 07/30/2015 |
| WA   | State of Washington Department of Ecology    | C2065         | 02/23/2015 |
| ME   | State of Maine                               | 2011028       | 06/9/2015  |
| VA   | Commonwealth of Virginia                     | 460217        | 12/14/2014 |
| NH-P | New Hampshire Environmental Lab              | 2557 NELAP    | 09/6/2014  |



FedEx<sup>®</sup> Tracking**801813503584**Ship (P/U) date :  
**Fri 9/05/2014 4:33 pm**

LIN US

**Delivered**

Signed for by: P.BLAKE

Actual delivery :  
**Mon 9/08/2014 9:16 am**

MA US

Let us tell you when your shipment arrives. Sign up for delivery notifications &gt;

## Travel History

| ▲ Date/Time            | Activity                      | Location          |
|------------------------|-------------------------------|-------------------|
| - 9/08/2014 - Monday   |                               |                   |
| 9:16 am                | Delivered                     | MA                |
| 7:56 am                | On FedEx vehicle for delivery | WINDSOR LOCKS, CT |
| - 9/06/2014 - Saturday |                               |                   |
| 5:59 pm                | At local FedEx facility       | WINDSOR LOCKS, CT |
| 8:18 am                | At local FedEx facility       | WINDSOR LOCKS, CT |
|                        | Package not due for delivery  |                   |
| 7:21 am                | At destination sort facility  | EAST GRANBY, CT   |
| 4:05 am                | Departed FedEx location       | MEMPHIS, TN       |
| - 9/05/2014 - Friday   |                               |                   |
| 11:07 pm               | Arrived at FedEx location     | MEMPHIS, TN       |
| 7:34 pm                | Left FedEx origin facility    | LINCOLN, NE       |
| 4:33 pm                | Picked up                     | LINCOLN, NE       |
|                        | Tendered at FedEx Office      |                   |

## Shipment Facts

|                          |                    |                       |                          |
|--------------------------|--------------------|-----------------------|--------------------------|
| Tracking number          | 801813503584       | Service               | FedEx Priority Overnight |
| Weight                   | 0.4 lbs / 0.18 kgs | Delivered To          | Receptionist/Front Desk  |
| Total pieces             | 1                  | Total shipment weight | 0.4 lbs / 0.18 kgs       |
| Shipper reference        | 214 3404003        | Packaging             | FedEx Envelope           |
| Special handling section | Deliver Weekday    |                       |                          |

39 Spruce St.  
East Longmeadow, MA. 01028  
P: 413-525-2332  
F: 413-525-6405  
www.contestlabs.com



Page 1 of 2



## Sample Receipt Checklist

CLIENT NAME: University of Nebraska RECEIVED BY: PB DATE: 9.8.14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples? Yes No

If not, explain:

3) Are all the samples in good condition? Yes No

If not, explain:

4) How were the samples received:

On Ice ☐ Direct from Sampling ☐ Ambient ☒ In Cooler(s) ☐

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank \_\_\_\_\_ Temperature °C by Temp gun \_\_\_\_\_

5) Are there Dissolved samples for the lab to filter? Yes No

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

6) Are there any RUSH or SHORT HOLDING TIME samples? Yes No

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

7) Location where samples are stored:

log in

Permission to subcontract samples? Yes No  
(Walk-in clients only) if not already approved  
Client Signature: \_\_\_\_\_

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

### Containers received at Con-Test

|                                | # of containers |                              | # of containers |
|--------------------------------|-----------------|------------------------------|-----------------|
| 1 Liter Amber                  |                 | 8 oz amber/clear jar         |                 |
| 500 mL Amber                   |                 | 4 oz amber/clear jar         |                 |
| 250 mL Amber (8oz amber)       |                 | 2 oz amber/clear jar         |                 |
| 1 Liter Plastic                |                 | Plastic Bag/ Ziploc <u>2</u> |                 |
| 500 mL Plastic                 |                 | SOC Kit                      |                 |
| 250 mL plastic                 |                 | Non-ConTest Container        |                 |
| 40 mL Vial - type listed below |                 | Perchlorate Kit              |                 |
| Colisure / bacteria bottle     |                 | Flashpoint bottle            |                 |
| Dissolved Oxygen bottle        |                 | Other glass jar              |                 |
| Encore                         |                 | Other                        |                 |

Laboratory Comments:

40 mL vials: # HCl \_\_\_\_\_ # Methanol \_\_\_\_\_

Doc# 277

# Bisulfate \_\_\_\_\_ # DI Water \_\_\_\_\_

Rev. 4 August 2013

# Thiosulfate \_\_\_\_\_ Unpreserved \_\_\_\_\_

Time and Date Frozen:



**Login Sample Receipt Checklist**  
**(Rejection Criteria Listing - Using Sample Acceptance Policy)**  
**Any False statement will be brought to the attention of Client**

| <u>Question</u>   | <u>Answer (True/False)</u> | <u>Comment</u> |
|---|----------------------------|----------------|
|   | T/F/NA                     |                |
| 1) The cooler's custody seal, if present, is intact.  | NA                         |                |
| 2) The cooler or samples do not appear to have been compromised or tampered with.           | T                          |                |
| 3) Samples were received on ice.  | NA                         |                |
| 4) Cooler Temperature is acceptable.  | NA                         |                |
| 5) Cooler Temperature is recorded.  | NA                         |                |
| 6) COC is filled out in ink and legible.  | T                          |                |
| 7) COC is filled out with all pertinent information.  | T                          |                |
| 8) Field Sampler's name present on COC.   | T                          |                |
| 9) There are no discrepancies between the sample IDs on the container and the COC.          | T                          |                |
| 10) Samples are received within Holding Time.   | T                          |                |
| 11) Sample containers have legible labels.  | T                          |                |
| 12) Containers are not broken or leaking.   | T                          |                |
| 13) Air Cassettes are not broken/open.  | NA                         |                |
| 14) Sample collection date/times are provided.  | T                          |                |
| 15) Appropriate sample containers are used.   | T                          |                |
| 16) Proper collection media used.   | T                          |                |
| 17) No headspace sample bottles are completely filled.                                      | NA                         |                |
| 18) There is sufficient volume for all requested analyses, including any requested MS/MSDs. | T                          |                |
| 19) Trip blanks provided if applicable.   | NA                         |                |
| 20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.           | NA                         |                |
| 21) Samples do not require splitting or compositing.  | T                          |                |

Doc #277 Rev. 4 August 2013

Who notified of False statements?  
 Log-In Technician Initials: PB

Date/Time:  
 Date/Time: 9.8.14

November 13, 2014

Joel Webb  
Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507

Project Location: Behlen  
Client Job Number:  
Project Number: [none]  
Laboratory Work Order Number: 14K0312

Enclosed are results of analyses for samples received by the laboratory on November 7, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron L. Benoit", with a long horizontal flourish extending to the right.

Aaron L. Benoit  
Project Manager

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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507  
ATTN: Joel Webb

REPORT DATE: 11/13/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

#### ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14K0312

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Behlen

| FIELD SAMPLE # | LAB ID:    | MATRIX | SAMPLE DESCRIPTION | TEST         | SUB LAB |
|----------------|------------|--------|--------------------|--------------|---------|
| BS             | 14K0312-01 | Caulk  |                    | SW-846 8082A |         |
| BSW            | 14K0312-02 | Caulk  |                    | SW-846 8082A |         |
| BE             | 14K0312-03 | Caulk  |                    | SW-846 8082A |         |
| BW             | 14K0312-04 | Caulk  |                    | SW-846 8082A |         |
| BB             | 14K0312-05 | Caulk  |                    | SW-846 8082A |         |

#### **CASE NARRATIVE SUMMARY**

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332  
SW-846 8082A

**Qualifications:****O-04**

Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.

**Analyte & Samples(s) Qualified:****Aroclor-1242**

14K0312-05[BB]

**Aroclor-1242 [2C]**

14K0312-05[BB]

**Aroclor-1248**

14K0312-04[BW]

**Aroclor-1248 [2C]**

14K0312-04[BW]

**P-04**

Due to continuing calibration non-conformance on the confirmatory detector, the lower of two results was reported.

**Analyte & Samples(s) Qualified:****Aroclor-1254**

14K0312-04[BW]

**R-05**

Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.

**Analyte & Samples(s) Qualified:****Aroclor-1016**

14K0312-01[BS], 14K0312-02[BSW], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB], B109252-BLK1, B109252-BS1, B109252-BSD1

**Aroclor-1016 [2C]**

14K0312-01[BS], 14K0312-02[BSW], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB], B109252-BLK1, B109252-BS1, B109252-BSD1

**Aroclor-1260**

14K0312-01[BS], 14K0312-02[BSW], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB], B109252-BLK1, B109252-BS1, B109252-BSD1

**Aroclor-1260 [2C]**

14K0312-01[BS], 14K0312-02[BSW], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB], B109252-BLK1, B109252-BS1, B109252-BSD1

**S-01**

The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.

**Analyte & Samples(s) Qualified:****Decachlorobiphenyl**

14K0312-01[BS], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB]

**Decachlorobiphenyl [2C]**

14K0312-01[BS], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB]

**Tetrachloro-m-xylene**

14K0312-01[BS], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB]

**Tetrachloro-m-xylene [2C]**

14K0312-01[BS], 14K0312-03[BE], 14K0312-04[BW], 14K0312-05[BB]

**Z-01**

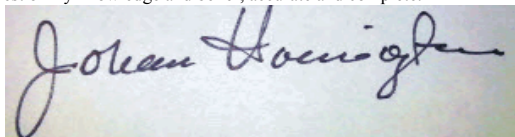
Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. Due to surrogate non-conformance on the confirmatory detector, the lower result was reported.

**Analyte & Samples(s) Qualified:****Aroclor-1260**

14K0312-04[BW]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

A handwritten signature in black ink, reading "Johanna K. Harrington". The signature is written in a cursive style with a large, prominent 'J' and 'H'.

Johanna K. Harrington  
Manager, Laboratory Reporting

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0312

Date Received: 11/7/2014

Field Sample #: BS

Sampled: 11/6/2014 00:00

Sample ID: 14K0312-01

Sample Matrix: Caulk

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 390             | mg/Kg | 2000     | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1221 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1232 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1242 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1248 [1]         | 4600       | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1254 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1260 [1]         | ND         | 390             | mg/Kg | 2000     | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1262 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Aroclor-1268 [1]         | ND         | 390             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:06     | KAL     |
| Surrogates               | % Recovery | Recovery Limits |       |          | Flag/Qual |              |               |                    |         |
| Decachlorobiphenyl [1]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:06     |         |
| Decachlorobiphenyl [2]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:06     |         |
| Tetrachloro-m-xylene [1] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:06     |         |
| Tetrachloro-m-xylene [2] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:06     |         |



39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0312

Date Received: 11/7/2014

Field Sample #: BSW

Sampled: 11/6/2014 00:00

Sample ID: 14K0312-02

Sample Matrix: Caulk

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units     | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 0.81            | mg/Kg     | 4        | R-05      | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1221 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1232 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1242 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1248 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1254 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1260 [1]         | ND         | 0.81            | mg/Kg     | 4        | R-05      | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1262 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Aroclor-1268 [1]         | ND         | 0.81            | mg/Kg     | 4        |           | SW-846 8082A | 11/9/14       | 11/11/14 20:51     | KAL     |
| Surrogates               | % Recovery | Recovery Limits | Flag/Qual |          |           |              |               |                    |         |
| Decachlorobiphenyl [1]   | 59.3       | 30-150          |           |          |           |              |               | 11/11/14 20:51     |         |
| Decachlorobiphenyl [2]   | 73.0       | 30-150          |           |          |           |              |               | 11/11/14 20:51     |         |
| Tetrachloro-m-xylene [1] | 61.6       | 30-150          |           |          |           |              |               | 11/11/14 20:51     |         |
| Tetrachloro-m-xylene [2] | 57.6       | 30-150          |           |          |           |              |               | 11/11/14 20:51     |         |

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0312

Date Received: 11/7/2014

Field Sample #: BE

Sampled: 11/6/2014 00:00

Sample ID: 14K0312-03

Sample Matrix: Caulk

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 410             | mg/Kg | 2000     | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1221 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1232 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1242 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1248 [2]         | 4800       | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1254 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1260 [1]         | ND         | 410             | mg/Kg | 2000     | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1262 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Aroclor-1268 [1]         | ND         | 410             | mg/Kg | 2000     |           | SW-846 8082A | 11/9/14       | 11/12/14 12:19     | KAL     |
| Surrogates               | % Recovery | Recovery Limits |       |          | Flag/Qual |              |               |                    |         |
| Decachlorobiphenyl [1]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:19     |         |
| Decachlorobiphenyl [2]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:19     |         |
| Tetrachloro-m-xylene [1] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:19     |         |
| Tetrachloro-m-xylene [2] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:19     |         |

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0312

Date Received: 11/7/2014

Field Sample #: BW

Sampled: 11/6/2014 00:00

Sample ID: 14K0312-04

Sample Matrix: Caulk

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units | Dilution | Flag/Qual  | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-------|----------|------------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 200             | mg/Kg | 1000     | R-05       | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1221 [1]         | ND         | 200             | mg/Kg | 1000     |            | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1232 [1]         | ND         | 200             | mg/Kg | 1000     |            | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1242 [1]         | ND         | 200             | mg/Kg | 1000     |            | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1248 [1]         | 3400       | 200             | mg/Kg | 1000     | O-04       | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1254 [1]         | 1200       | 200             | mg/Kg | 1000     | P-04       | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1260 [1]         | 200        | 200             | mg/Kg | 1000     | R-05, Z-01 | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1262 [1]         | ND         | 200             | mg/Kg | 1000     |            | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Aroclor-1268 [1]         | ND         | 200             | mg/Kg | 1000     |            | SW-846 8082A | 11/9/14       | 11/11/14 21:27     | KAL     |
| Surrogates               | % Recovery | Recovery Limits |       |          | Flag/Qual  |              |               |                    |         |
| Decachlorobiphenyl [1]   | *          | 30-150          |       |          | S-01       |              |               | 11/11/14 21:27     |         |
| Decachlorobiphenyl [2]   | *          | 30-150          |       |          | S-01       |              |               | 11/11/14 21:27     |         |
| Tetrachloro-m-xylene [1] | *          | 30-150          |       |          | S-01       |              |               | 11/11/14 21:27     |         |
| Tetrachloro-m-xylene [2] | *          | 30-150          |       |          | S-01       |              |               | 11/11/14 21:27     |         |

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0312

Date Received: 11/7/2014

Field Sample #: BB

Sampled: 11/6/2014 00:00

Sample ID: 14K0312-05

Sample Matrix: Caulk

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 97              | mg/Kg | 500      | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1221 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1232 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1242 [1]         | 1200       | 97              | mg/Kg | 500      | O-04      | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1248 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1254 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1260 [1]         | ND         | 97              | mg/Kg | 500      | R-05      | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1262 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Aroclor-1268 [1]         | ND         | 97              | mg/Kg | 500      |           | SW-846 8082A | 11/9/14       | 11/12/14 12:32     | KAL     |
| Surrogates               | % Recovery | Recovery Limits |       |          | Flag/Qual |              |               |                    |         |
| Decachlorobiphenyl [1]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:32     |         |
| Decachlorobiphenyl [2]   | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:32     |         |
| Tetrachloro-m-xylene [1] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:32     |         |
| Tetrachloro-m-xylene [2] | *          | 30-150          |       |          | S-01      |              |               | 11/12/14 12:32     |         |

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### Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

| Lab Number [Field ID] | Batch   | Initial [g] | Final [mL] | Date     |
|-----------------------|---------|-------------|------------|----------|
| 14K0312-01 [BS]       | B109252 | 0.515       | 10.0       | 11/09/14 |
| 14K0312-02 [BSW]      | B109252 | 0.496       | 10.0       | 11/09/14 |
| 14K0312-03 [BE]       | B109252 | 0.492       | 10.0       | 11/09/14 |
| 14K0312-04 [BW]       | B109252 | 0.503       | 10.0       | 11/09/14 |
| 14K0312-05 [BB]       | B109252 | 0.513       | 10.0       | 11/09/14 |

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### QUALITY CONTROL

#### Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte                               | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD    | RPD Limit | Notes |
|---------------------------------------|--------|-----------------|-------|-------------|---------------|------|-------------|--------|-----------|-------|
| <b>Batch B109252 - SW-846 3540C</b>   |        |                 |       |             |               |      |             |        |           |       |
| <b>Blank (B109252-BLK1)</b>           |        |                 |       |             |               |      |             |        |           |       |
| Prepared: 11/09/14 Analyzed: 11/11/14 |        |                 |       |             |               |      |             |        |           |       |
| Aroclor-1016                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           | R-05  |
| Aroclor-1016 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           | R-05  |
| Aroclor-1221                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1221 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1232                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1232 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1242                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1242 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1248                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1248 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1254                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1254 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1260                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           | R-05  |
| Aroclor-1260 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           | R-05  |
| Aroclor-1262                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1262 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1268                          | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Aroclor-1268 [2C]                     | ND     | 0.20            | mg/Kg |             |               |      |             |        |           |       |
| Surrogate: Decachlorobiphenyl         | 4.35   |                 | mg/Kg | 4.00        |               | 109  | 30-150      |        |           |       |
| Surrogate: Decachlorobiphenyl [2C]    | 4.80   |                 | mg/Kg | 4.00        |               | 120  | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene       | 4.33   |                 | mg/Kg | 4.00        |               | 108  | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene [2C]  | 3.57   |                 | mg/Kg | 4.00        |               | 89.2 | 30-150      |        |           |       |
| <b>LCS (B109252-BS1)</b>              |        |                 |       |             |               |      |             |        |           |       |
| Prepared: 11/09/14 Analyzed: 11/11/14 |        |                 |       |             |               |      |             |        |           |       |
| Aroclor-1016                          | 2.9    | 0.20            | mg/Kg | 4.00        |               | 73.0 | 40-140      |        |           | R-05  |
| Aroclor-1016 [2C]                     | 2.9    | 0.20            | mg/Kg | 4.00        |               | 71.8 | 40-140      |        |           | R-05  |
| Aroclor-1260                          | 3.3    | 0.20            | mg/Kg | 4.00        |               | 83.6 | 40-140      |        |           | R-05  |
| Aroclor-1260 [2C]                     | 3.3    | 0.20            | mg/Kg | 4.00        |               | 81.8 | 40-140      |        |           | R-05  |
| Surrogate: Decachlorobiphenyl         | 3.61   |                 | mg/Kg | 4.00        |               | 90.4 | 30-150      |        |           |       |
| Surrogate: Decachlorobiphenyl [2C]    | 4.07   |                 | mg/Kg | 4.00        |               | 102  | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene       | 3.49   |                 | mg/Kg | 4.00        |               | 87.3 | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene [2C]  | 2.94   |                 | mg/Kg | 4.00        |               | 73.6 | 30-150      |        |           |       |
| <b>LCS Dup (B109252-BSD1)</b>         |        |                 |       |             |               |      |             |        |           |       |
| Prepared: 11/09/14 Analyzed: 11/11/14 |        |                 |       |             |               |      |             |        |           |       |
| Aroclor-1016                          | 2.1    | 0.20            | mg/Kg | 4.00        |               | 51.6 | 40-140      | 34.4 * | 30        | R-05  |
| Aroclor-1016 [2C]                     | 2.1    | 0.20            | mg/Kg | 4.00        |               | 51.7 | 40-140      | 32.5 * | 30        | R-05  |
| Aroclor-1260                          | 2.0    | 0.20            | mg/Kg | 4.00        |               | 50.2 | 40-140      | 49.8 * | 30        | R-05  |
| Aroclor-1260 [2C]                     | 2.1    | 0.20            | mg/Kg | 4.00        |               | 53.5 | 40-140      | 41.9 * | 30        | R-05  |
| Surrogate: Decachlorobiphenyl         | 2.00   |                 | mg/Kg | 4.00        |               | 49.9 | 30-150      |        |           |       |
| Surrogate: Decachlorobiphenyl [2C]    | 2.37   |                 | mg/Kg | 4.00        |               | 59.2 | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene       | 1.71   |                 | mg/Kg | 4.00        |               | 42.9 | 30-150      |        |           |       |
| Surrogate: Tetrachloro-m-xylene [2C]  | 1.54   |                 | mg/Kg | 4.00        |               | 38.5 | 30-150      |        |           |       |

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***BS**Lab Sample ID: 14K0312-01 Date(s) Analyzed: 11/12/2014 11/12/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D  |
|--------------|-----|------|-----------|------|---------------|-----|
|              |     |      | FROM      | TO   |               |     |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 4600          |     |
|              | 2   | 0.00 | 0.00      | 0.00 | 4500          | 1.1 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***BE**Lab Sample ID: 14K0312-03 Date(s) Analyzed: 11/12/2014 11/12/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 3500          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 4800          | 32.7 |



# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

BW

Lab Sample ID: 14K0312-04 Date(s) Analyzed: 11/11/2014 11/11/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 3400          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 2700          | 23.0 |
| Aroclor-1254 | 1   | 0.00 | 0.00      | 0.00 | 1200          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 1800          | 39.2 |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 200           |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 310           | 41.2 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**BB**

Lab Sample ID: 14K0312-05 Date(s) Analyzed: 11/12/2014 11/12/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D  |
|--------------|-----|------|-----------|------|---------------|-----|
|              |     |      | FROM      | TO   |               |     |
| Aroclor-1242 | 1   | 0.00 | 0.00      | 0.00 | 1200          |     |
|              | 2   | 0.00 | 0.00      | 0.00 | 1100          | 5.3 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

LCS

Lab Sample ID: B109252-BS1 Date(s) Analyzed: 11/11/2014 11/11/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 2.9           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 2.9           | 1  |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 3.3           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 3.3           | 1  |

# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B109252-BSD1 Date(s) Analyzed: 11/11/2014 11/11/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 2.1           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 2.1           | 2  |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 2.0           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 2.1           | 4  |

**FLAG/QUALIFIER SUMMARY**

|      |   |
|------|---|
| *    | QC result is outside of established limits.   |
| †    | Wide recovery limits established for difficult compound.  |
| ‡    | Wide RPD limits established for difficult compound.   |
| #    | Data exceeded client recommended or regulatory level  |
|      | Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.  |
|      | No results have been blank subtracted unless specified in the case narrative section.   |
| O-04 | Sample fingerprint does not match standard exactly. Sample was quantitated against the closest matching standard.   |
| P-04 | Due to continuing calibration non-conformance on the confirmatory detector, the lower of two results was reported.  |
| R-05 | Laboratory fortified blank duplicate RPD is outside of control limits. Reduced precision is anticipated for any reported value for this compound.   |
| S-01 | The surrogate recovery for this sample is not available due to sample dilution below the surrogate reporting limit required from high analyte concentration and/or matrix interferences.                    |
| Z-01 | Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. Due to surrogate non-conformance on the confirmatory detector, the lower result was reported. |

# CERTIFICATIONS

## Certified Analyses included in this Report

| Analyte | Certifications |
|---------|----------------|
|---------|----------------|

## No certified Analyses included in this Report

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

| Code | Description                                  | Number        | Expires    |
|------|--|---------------|------------|
| AIHA | AIHA-LAP, LLC                                | 100033        | 02/1/2016  |
| MA   | Massachusetts DEP                            | M-MA100       | 06/30/2015 |
| CT   | Connecticut Department of Public Health      | PH-0567       | 09/30/2015 |
| NY   | New York State Department of Health          | 10899 NELAP   | 04/1/2015  |
| NH-S | New Hampshire Environmental Lab              | 2516 NELAP    | 02/5/2015  |
| RI   | Rhode Island Department of Health            | LAO00112      | 12/30/2014 |
| NC   | North Carolina Div. of Water Quality         | 652           | 12/31/2014 |
| NJ   | New Jersey DEP                               | MA007 NELAP   | 06/30/2015 |
| FL   | Florida Department of Health                 | E871027 NELAP | 06/30/2015 |
| VT   | Vermont Department of Health Lead Laboratory | LL015036      | 07/30/2015 |
| WA   | State of Washington Department of Ecology    | C2065         | 02/23/2015 |
| ME   | State of Maine                               | 2011028       | 06/9/2015  |
| VA   | Commonwealth of Virginia                     | 460217        | 12/14/2014 |
| NH-P | New Hampshire Environmental Lab              | 2557 NELAP    | 09/6/2015  |



FedEx® Tracking

**546417995810**Ship (P/U) date :  
**Thur 11/06/2014 3:25 pm**

Lincoln, NE US

Actual delivery :  
**Fri 11/07/2014 9:38 am**

EAST LONGMEADOW, MA US

**Delivered**

Signed for by: A.JONES

**Travel History**

| ▲ Date/Time             | Activity                           | Location            |
|-------------------------|------------------------------------|---------------------|
| ■ 11/07/2014 - Friday   |                                    |                     |
| 9:38 am                 | Delivered                          | EAST LONGMEADOW, MA |
| 8:18 am                 | On FedEx vehicle for delivery      | WINDSOR LOCKS, CT   |
| 7:56 am                 | At local FedEx facility            | WINDSOR LOCKS, CT   |
| 7:03 am                 | At destination sort facility       | EAST GRANBY, CT     |
| 3:42 am                 | Departed FedEx location            | MEMPHIS, TN         |
| ■ 11/06/2014 - Thursday |                                    |                     |
| 10:56 pm                | Arrived at FedEx location          | MEMPHIS, TN         |
| 7:23 pm                 | Left FedEx origin facility         | LINCOLN, NE         |
| 3:38 pm                 | Shipment information sent to FedEx |                     |
| 3:25 pm                 | Picked up                          | LINCOLN, NE         |

**Shipment Facts**

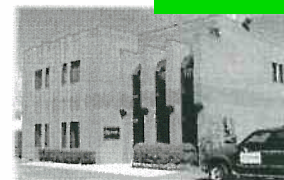
|                   |                  |                          |                          |
|-------------------|------------------|--------------------------|--------------------------|
| Tracking number   | 546417995810     | Service                  | FedEx Priority Overnight |
| Weight            | 1 lbs / 0.45 kgs | Delivered To             | Shipping/Receiving       |
| Total pieces      | 1                | Total shipment weight    | 1 lbs / 0.45 kgs         |
| Shipper reference | EHS - Behlen     | Shipper reference        | 2243404801               |
| Packaging         | FedEx Pak        | Special handling section | Deliver Weekday          |



39 Spruce St.  
East Longmeadow, MA. 01028  
P: 413-525-2332  
F: 413-525-6405  
www.contestlabs.com



Page 1 of 2



## Sample Receipt Checklist

CLIENT NAME: University of Nebraska RECEIVED BY: MJ DATE: 11/7/14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples?

Yes No

If not, explain:

3) Are all the samples in good condition?

Yes No

If not, explain:

4) How were the samples received:

On Ice ☐ Direct from Sampling ☐ Ambient ☒ In Cooler(s) ☐

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank \_\_\_\_\_ Temperature °C by Temp gun 20°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

6) Are there any RUSH or SHORT HOLDING TIME samples?

Yes No

Who was notified Ext. Date 11/7/14 Time 9:28

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No

(Walk-in clients only) if not already approved

Client Signature: \_\_\_\_\_

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

### Containers received at Con-Test

|                                | # of containers |                       | # of containers |
|--------------------------------|-----------------|-----------------------|-----------------|
| 1 Liter Amber                  |                 | 8 oz amber/clear jar  |                 |
| 500 mL Amber                   |                 | 4 oz amber/clear jar  |                 |
| 250 mL Amber (8oz amber)       |                 | 2 oz amber/clear jar  |                 |
| 1 Liter Plastic                |                 | Plastic Bag / Ziploc  | <u>5</u>        |
| 500 mL Plastic                 |                 | SOC Kit               |                 |
| 250 mL plastic                 |                 | Non-ConTest Container |                 |
| 40 mL Vial - type listed below |                 | Perchlorate Kit       |                 |
| Colisure / bacteria bottle     |                 | Flashpoint bottle     |                 |
| Dissolved Oxygen bottle        |                 | Other glass jar       |                 |
| Encore                         |                 | Other                 |                 |

Laboratory Comments:

40 mL vials: # HCl \_\_\_\_\_ # Methanol \_\_\_\_\_

Doc# 277 # Bisulfate \_\_\_\_\_ # DI Water \_\_\_\_\_

Rev. 4 August 2013 # Thiosulfate \_\_\_\_\_ Unpreserved \_\_\_\_\_

Time and Date Frozen:

**Login Sample Receipt Checklist****(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

| Question  | Answer (True/False) |  | Comment |
|---|---------------------|--|---------|
|   | T/F/NA              |  |         |
| 1) The cooler's custody seal, if present, is intact.  | T                   |  |         |
| 2) The cooler or samples do not appear to have been compromised or tampered with.           | T                   |  |         |
| 3) Samples were received on ice.  | T                   |  |         |
| 4) Cooler Temperature is acceptable.  | T                   |  |         |
| 5) Cooler Temperature is recorded.  | T                   |  |         |
| 6) COC is filled out in ink and legible.  | T                   |  |         |
| 7) COC is filled out with all pertinent information.  | T                   |  |         |
| 8) Field Sampler's name present on COC.   | T                   |  |         |
| 9) There are no discrepancies between the sample IDs on the container and the COC.          | T                   |  |         |
| 10) Samples are received within Holding Time.   | T                   |  |         |
| 11) Sample containers have legible labels.  | T                   |  |         |
| 12) Containers are not broken or leaking.   | T                   |  |         |
| 13) Air Cassettes are not broken/open.  | NA                  |  |         |
| 14) Sample collection date/times are provided.  | T                   |  |         |
| 15) Appropriate sample containers are used.   | T                   |  |         |
| 16) Proper collection media used.   | T                   |  |         |
| 17) No headspace sample bottles are completely filled.                                      | NA                  |  |         |
| 18) There is sufficient volume for all requested analyses, including any requested MS/MSDs. | T                   |  |         |
| 19) Trip blanks provided if applicable.   | T                   |  |         |
| 20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.           | NA                  |  |         |
| 21) Samples do not require splitting or compositing.  | T                   |  |         |

**Who notified of False statements?****Date/Time:****Doc #277 Rev. 4 August 2013****Log-In Technician Initials:****Date/Time:**

MJ 11/7/14 9:38

November 18, 2014

Joel Webb  
Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507

Project Location: Behlen  
Client Job Number:  
Project Number: [none]  
Laboratory Work Order Number: 14K0656

Enclosed are results of analyses for samples received by the laboratory on November 14, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Aaron L. Benoit", with a long horizontal line extending to the right.

Aaron L. Benoit  
Project Manager

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39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Single Projects  
3630 East Campus Loop  
Lincoln, Nebraska 68507  
ATTN: Joel Webb

REPORT DATE: 11/18/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: [none]

#### ANALYTICAL SUMMARY

---

WORK ORDER NUMBER: 14K0656

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Behlen

| FIELD SAMPLE # | LAB ID:    | MATRIX        | SAMPLE DESCRIPTION | TEST         | SUB LAB |
|----------------|------------|---------------|--------------------|--------------|---------|
| BVC            | 14K0656-01 | Product/Solid |                    | SW-846 8082A |         |
| BHS            | 14K0656-02 | Product/Solid |                    | SW-846 8082A |         |
| BVD            | 14K0656-03 | Product/Solid |                    | SW-846 8082A |         |

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

SW-846 8082A

Qualifications:

MS-21

Matrix spike and/or spike duplicate recovery bias high due to contribution of other Aroclors present in the source sample.

Analyte & Samples(s) Qualified:

Aroclor-1016

B109806-MS1, B109806-MSD1

Aroclor-1016 [2C]

B109806-MS1, B109806-MSD1

P-01

Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. In accordance with the method, the higher result was reported.

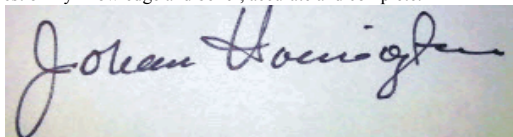
Analyte & Samples(s) Qualified:

Aroclor-1248

14K0656-03[BVD]

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Johanna K. Harrington

Manager, Laboratory Reporting

39 Spruce Street \* East Longmeadow, MA 01028 \* FAX 413/525-6405 \* TEL. 413/525-2332

Project Location: Behlen

Sample Description:

Work Order: 14K0656

Date Received: 11/14/2014

Field Sample #: BVC

Sampled: 11/13/2014 00:00

Sample ID: 14K0656-01

Sample Matrix: Product/Solid

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units     | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1221 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1232 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1242 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1248 [1]         | 1.8        | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1254 [1]         | 0.45       | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1260 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1262 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Aroclor-1268 [1]         | ND         | 0.20            | mg/Kg     | 2        |           | SW-846 8082A | 11/15/14      | 11/18/14 8:24      | JMB     |
| Surrogates               | % Recovery | Recovery Limits | Flag/Qual |          |           |              |               |                    |         |
| Decachlorobiphenyl [1]   | 104        | 30-150          |           |          |           |              |               | 11/18/14 8:24      |         |
| Decachlorobiphenyl [2]   | 95.8       | 30-150          |           |          |           |              |               | 11/18/14 8:24      |         |
| Tetrachloro-m-xylene [1] | 109        | 30-150          |           |          |           |              |               | 11/18/14 8:24      |         |
| Tetrachloro-m-xylene [2] | 103        | 30-150          |           |          |           |              |               | 11/18/14 8:24      |         |

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Project Location: Behlen

Sample Description:

Work Order: 14K0656

Date Received: 11/14/2014

Sampled: 11/13/2014 00:00

Field Sample #: BHS

Sample ID: 14K0656-02

Sample Matrix: Product/Solid

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units     | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1221 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1232 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1242 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1248 [1]         | 8.9        | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1254 [1]         | 2.4        | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1260 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1262 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Aroclor-1268 [1]         | ND         | 1.0             | mg/Kg     | 10       |           | SW-846 8082A | 11/15/14      | 11/18/14 8:37      | JMB     |
| Surrogates               | % Recovery | Recovery Limits | Flag/Qual |          |           |              |               |                    |         |
| Decachlorobiphenyl [1]   | 110        | 30-150          |           |          |           |              |               | 11/18/14 8:37      |         |
| Decachlorobiphenyl [2]   | 88.8       | 30-150          |           |          |           |              |               | 11/18/14 8:37      |         |
| Tetrachloro-m-xylene [1] | 107        | 30-150          |           |          |           |              |               | 11/18/14 8:37      |         |
| Tetrachloro-m-xylene [2] | 96.6       | 30-150          |           |          |           |              |               | 11/18/14 8:37      |         |



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Project Location: Behlen

Sample Description:

Work Order: 14K0656

Date Received: 11/14/2014

Sampled: 11/13/2014 00:00

Field Sample #: BVD

Sample ID: 14K0656-03

Sample Matrix: Product/Solid

**Polychlorinated Biphenyls with 3540 Soxhlet Extraction**

| Analyte                  | Results    | RL              | Units     | Dilution | Flag/Qual | Method       | Date Prepared | Date/Time Analyzed | Analyst |
|--------------------------|------------|-----------------|-----------|----------|-----------|--------------|---------------|--------------------|---------|
| Aroclor-1016 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1221 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1232 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1242 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1248 [1]         | 0.60       | 0.10            | mg/Kg     | 1        | P-01      | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1254 [1]         | 0.18       | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1260 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1262 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Aroclor-1268 [1]         | ND         | 0.10            | mg/Kg     | 1        |           | SW-846 8082A | 11/15/14      | 11/17/14 17:33     | JMB     |
| Surrogates               | % Recovery | Recovery Limits | Flag/Qual |          |           |              |               |                    |         |
| Decachlorobiphenyl [1]   | 91.5       | 30-150          |           |          |           |              |               | 11/17/14 17:33     |         |
| Decachlorobiphenyl [2]   | 85.2       | 30-150          |           |          |           |              |               | 11/17/14 17:33     |         |
| Tetrachloro-m-xylene [1] | 96.7       | 30-150          |           |          |           |              |               | 11/17/14 17:33     |         |
| Tetrachloro-m-xylene [2] | 88.1       | 30-150          |           |          |           |              |               | 11/17/14 17:33     |         |

---

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### Sample Extraction Data

Prep Method: SW-846 3540C-SW-846 8082A

| Lab Number [Field ID] | Batch   | Initial [g] | Final [mL] | Date     |
|-----------------------|---------|-------------|------------|----------|
| 14K0656-01 [BVC]      | B109806 | 2.02        | 10.0       | 11/15/14 |
| 14K0656-02 [BHS]      | B109806 | 2.01        | 10.0       | 11/15/14 |
| 14K0656-03 [BVD]      | B109806 | 2.00        | 10.0       | 11/15/14 |

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# QUALITY CONTROL

## Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

### Batch B109806 - SW-846 3540C

#### Blank (B109806-BLK1)

Prepared: 11/15/14 Analyzed: 11/17/14

|                                      |       |      |       |      |  |      |        |  |  |  |
|--------------------------------------|-------|------|-------|------|--|------|--------|--|--|--|
| Aroclor-1016                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1016 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1221                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1221 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1232                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1232 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1242                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1242 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1248                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1248 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1254                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1254 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1260                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1260 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1262                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1262 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1268                         | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Aroclor-1268 [2C]                    | ND    | 0.10 | mg/Kg |      |  |      |        |  |  |  |
| Surrogate: Decachlorobiphenyl        | 1.02  |      | mg/Kg | 1.00 |  | 102  | 30-150 |  |  |  |
| Surrogate: Decachlorobiphenyl [2C]   | 0.889 |      | mg/Kg | 1.00 |  | 88.9 | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene      | 1.01  |      | mg/Kg | 1.00 |  | 101  | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.920 |      | mg/Kg | 1.00 |  | 92.0 | 30-150 |  |  |  |

#### LCS (B109806-BS1)

Prepared: 11/15/14 Analyzed: 11/17/14

|                                      |       |      |       |       |  |      |        |  |  |  |
|--------------------------------------|-------|------|-------|-------|--|------|--------|--|--|--|
| Aroclor-1016                         | 0.30  | 0.10 | mg/Kg | 0.250 |  | 119  | 40-140 |  |  |  |
| Aroclor-1016 [2C]                    | 0.25  | 0.10 | mg/Kg | 0.250 |  | 100  | 40-140 |  |  |  |
| Aroclor-1260                         | 0.27  | 0.10 | mg/Kg | 0.250 |  | 109  | 40-140 |  |  |  |
| Aroclor-1260 [2C]                    | 0.25  | 0.10 | mg/Kg | 0.250 |  | 98.3 | 40-140 |  |  |  |
| Surrogate: Decachlorobiphenyl        | 1.07  |      | mg/Kg | 1.00  |  | 107  | 30-150 |  |  |  |
| Surrogate: Decachlorobiphenyl [2C]   | 0.941 |      | mg/Kg | 1.00  |  | 94.1 | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene      | 1.04  |      | mg/Kg | 1.00  |  | 104  | 30-150 |  |  |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.960 |      | mg/Kg | 1.00  |  | 96.0 | 30-150 |  |  |  |

#### LCS Dup (B109806-BSD1)

Prepared: 11/15/14 Analyzed: 11/17/14

|                                      |       |      |       |       |  |      |        |      |    |  |
|--------------------------------------|-------|------|-------|-------|--|------|--------|------|----|--|
| Aroclor-1016                         | 0.30  | 0.10 | mg/Kg | 0.250 |  | 120  | 40-140 | 1.50 | 30 |  |
| Aroclor-1016 [2C]                    | 0.26  | 0.10 | mg/Kg | 0.250 |  | 103  | 40-140 | 2.35 | 30 |  |
| Aroclor-1260                         | 0.28  | 0.10 | mg/Kg | 0.250 |  | 112  | 40-140 | 2.36 | 30 |  |
| Aroclor-1260 [2C]                    | 0.25  | 0.10 | mg/Kg | 0.250 |  | 101  | 40-140 | 2.56 | 30 |  |
| Surrogate: Decachlorobiphenyl        | 1.08  |      | mg/Kg | 1.00  |  | 108  | 30-150 |      |    |  |
| Surrogate: Decachlorobiphenyl [2C]   | 0.935 |      | mg/Kg | 1.00  |  | 93.5 | 30-150 |      |    |  |
| Surrogate: Tetrachloro-m-xylene      | 1.03  |      | mg/Kg | 1.00  |  | 103  | 30-150 |      |    |  |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.945 |      | mg/Kg | 1.00  |  | 94.5 | 30-150 |      |    |  |

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# QUALITY CONTROL

## Polychlorinated Biphenyls with 3540 Soxhlet Extraction - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

### Batch B109806 - SW-846 3540C

| Matrix Spike (B109806-MS1)           | Source: 14K0656-01 |       |       | Prepared: 11/15/14 Analyzed: 11/17/14 |    |      |   |        |  |       |
|--------------------------------------|--------------------|-------|-------|---------------------------------------|----|------|---|--------|--|-------|
| Aroclor-1016                         | 1.6                | 0.097 | mg/Kg | 0.242                                 | ND | 671  | * | 40-140 |  | MS-21 |
| Aroclor-1016 [2C]                    | 1.3                | 0.097 | mg/Kg | 0.242                                 | ND | 536  | * | 40-140 |  | MS-21 |
| Aroclor-1260                         | 0.31               | 0.097 | mg/Kg | 0.242                                 | ND | 129  |   | 40-140 |  |       |
| Aroclor-1260 [2C]                    | 0.32               | 0.097 | mg/Kg | 0.242                                 | ND | 132  |   | 40-140 |  |       |
| Surrogate: Decachlorobiphenyl        | 0.916              |       | mg/Kg | 0.966                                 |    | 94.8 |   | 30-150 |  |       |
| Surrogate: Decachlorobiphenyl [2C]   | 0.906              |       | mg/Kg | 0.966                                 |    | 93.8 |   | 30-150 |  |       |
| Surrogate: Tetrachloro-m-xylene      | 1.03               |       | mg/Kg | 0.966                                 |    | 106  |   | 30-150 |  |       |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.932              |       | mg/Kg | 0.966                                 |    | 96.4 |   | 30-150 |  |       |

| Matrix Spike Dup (B109806-MSD1)      | Source: 14K0656-01 |       |       | Prepared: 11/15/14 Analyzed: 11/17/14 |    |      |   |        |      |    |       |
|--------------------------------------|--------------------|-------|-------|---------------------------------------|----|------|---|--------|------|----|-------|
| Aroclor-1016                         | 1.7                | 0.099 | mg/Kg | 0.246                                 | ND | 695  | * | 40-140 | 5.41 | 50 | MS-21 |
| Aroclor-1016 [2C]                    | 1.4                | 0.099 | mg/Kg | 0.246                                 | ND | 555  | * | 40-140 | 5.36 | 50 | MS-21 |
| Aroclor-1260                         | 0.32               | 0.099 | mg/Kg | 0.246                                 | ND | 131  |   | 40-140 | 3.21 | 50 |       |
| Aroclor-1260 [2C]                    | 0.33               | 0.099 | mg/Kg | 0.246                                 | ND | 135  |   | 40-140 | 3.75 | 50 |       |
| Surrogate: Decachlorobiphenyl        | 0.898              |       | mg/Kg | 0.985                                 |    | 91.2 |   | 30-150 |      |    |       |
| Surrogate: Decachlorobiphenyl [2C]   | 0.902              |       | mg/Kg | 0.985                                 |    | 91.6 |   | 30-150 |      |    |       |
| Surrogate: Tetrachloro-m-xylene      | 1.03               |       | mg/Kg | 0.985                                 |    | 104  |   | 30-150 |      |    |       |
| Surrogate: Tetrachloro-m-xylene [2C] | 0.928              |       | mg/Kg | 0.985                                 |    | 94.2 |   | 30-150 |      |    |       |

# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

BVC

Lab Sample ID: 14K0656-01 Date(s) Analyzed: 11/18/2014 11/18/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 1.8           |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 1.5           | 18.2 |
| Aroclor-1254 | 1   | 0.00 | 0.00      | 0.00 | 0.45          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.36          | 21.1 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**BHS**

Lab Sample ID: 14K0656-02 Date(s) Analyzed: 11/18/2014 11/18/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 8.9           |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 7.7           | 14.2 |
| Aroclor-1254 | 1   | 0.00 | 0.00      | 0.00 | 2.4           |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 1.9           | 21.6 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**BVD**

Lab Sample ID: 14K0656-03 Date(s) Analyzed: 11/17/2014 11/17/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D   |
|--------------|-----|------|-----------|------|---------------|------|
|              |     |      | FROM      | TO   |               |      |
| Aroclor-1248 | 1   | 0.00 | 0.00      | 0.00 | 0.60          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.38          | 45.5 |
| Aroclor-1254 | 1   | 0.00 | 0.00      | 0.00 | 0.18          |      |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.16          | 11.8 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

LCS

Lab Sample ID: B109806-BS1 Date(s) Analyzed: 11/17/2014 11/17/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 0.30          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.25          | 17 |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.27          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.25          | 9  |



# IDENTIFICATION SUMMARY FOR SINGLE COMPONENT ANALYTES

SW-846 8082A

LCS Dup

Lab Sample ID: B109806-BSD1 Date(s) Analyzed: 11/17/2014 11/17/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 0.30          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.26          | 15 |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.28          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.25          | 11 |

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**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES**

*SW-846 8082A*

**Matrix Spike**

Lab Sample ID: B109806-MS1 Date(s) Analyzed: 11/17/2014 11/17/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 1.6           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 1.3           | 22 |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.31          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.32          | 3  |

**IDENTIFICATION SUMMARY  
FOR SINGLE COMPONENT ANALYTES***SW-846 8082A***Matrix Spike Dup**Lab Sample ID: B109806-MSD1 Date(s) Analyzed: 11/17/2014 11/17/2014

Instrument ID (1): Instrument ID (2):

GC Column (1): ID: (mm) GC Column (2): ID: (mm)

| ANALYTE      | COL | RT   | RT WINDOW |      | CONCENTRATION | %D |
|--------------|-----|------|-----------|------|---------------|----|
|              |     |      | FROM      | TO   |               |    |
| Aroclor-1016 | 1   | 0.00 | 0.00      | 0.00 | 1.7           |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 1.4           | 20 |
| Aroclor-1260 | 1   | 0.00 | 0.00      | 0.00 | 0.32          |    |
|              | 2   | 0.00 | 0.00      | 0.00 | 0.33          | 2  |

---

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**FLAG/QUALIFIER SUMMARY**

|       |  |
|-------|--|
| *     | QC result is outside of established limits.  |
| †     | Wide recovery limits established for difficult compound.   |
| ‡     | Wide RPD limits established for difficult compound.  |
| #     | Data exceeded client recommended or regulatory level   |
|       | Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.                       |
|       | No results have been blank subtracted unless specified in the case narrative section.  |
| MS-21 | Matrix spike and/or spike duplicate recovery bias high due to contribution of other Aroclors present in the source sample.   |
| P-01  | Result was confirmed using a dissimilar column. Relative percent difference between the two results was >40%. In accordance with the method, the higher result was reported. |

# CERTIFICATIONS

## Certified Analyses included in this Report

| Analyte                              | Certifications       |
|--------------------------------------|----------------------|
| <i>SW-846 8082A in Product/Solid</i> |                      |
| Aroclor-1016                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1016 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1221                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1221 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1232                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1232 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1242                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1242 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1248                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1248 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1254                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1254 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1260                         | CT,NH,NY,ME,NC,VA,NJ |
| Aroclor-1260 [2C]                    | CT,NH,NY,ME,NC,VA,NJ |

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

| Code | Description                                  | Number        | Expires    |
|------|--|---------------|------------|
| AIHA | AIHA-LAP, LLC                                | 100033        | 02/1/2016  |
| MA   | Massachusetts DEP                            | M-MA100       | 06/30/2015 |
| CT   | Connecticut Department of Public Health      | PH-0567       | 09/30/2015 |
| NY   | New York State Department of Health          | 10899 NELAP   | 04/1/2015  |
| NH-S | New Hampshire Environmental Lab              | 2516 NELAP    | 02/5/2015  |
| RI   | Rhode Island Department of Health            | LAO00112      | 12/30/2014 |
| NC   | North Carolina Div. of Water Quality         | 652           | 12/31/2014 |
| NJ   | New Jersey DEP                               | MA007 NELAP   | 06/30/2015 |
| FL   | Florida Department of Health                 | E871027 NELAP | 06/30/2015 |
| VT   | Vermont Department of Health Lead Laboratory | LL015036      | 07/30/2015 |
| WA   | State of Washington Department of Ecology    | C2065         | 02/23/2015 |
| ME   | State of Maine                               | 2011028       | 06/9/2015  |
| VA   | Commonwealth of Virginia                     | 460217        | 12/14/2014 |
| NH-P | New Hampshire Environmental Lab              | 2557 NELAP    | 09/6/2015  |



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## Page 1 of 1

Rev 04.05.12

☐ yes \_\_\_\_\_ proposal date

ection ○ "Enhanced Data Package"

[illegible]

0 = other

**WBE/DBE Certified**

**PLEASE BE CAREFUL NOT TO CONTAMINATE THIS DOCUMENT**

FedEx® Tracking

**801813613187**Ship (P/U) date :  
**Thur 11/13/2014 1:07 pm**

LIN US

Actual delivery :  
**Fri 11/14/2014 9:33 am**

MA US

**Delivered**

Signed for by: P.BLAKE

## Travel History

| ▲ Date/Time             | Activity                      | Location          |
|-------------------------|-------------------------------|-------------------|
| ■ 11/14/2014 - Friday   |                               |                   |
| 9:33 am                 | Delivered                     | MA                |
| 8:24 am                 | On FedEx vehicle for delivery | WINDSOR LOCKS, CT |
| 7:57 am                 | At local FedEx facility       | WINDSOR LOCKS, CT |
| 7:13 am                 | At destination sort facility  | EAST GRANBY, CT   |
| 4:04 am                 | Departed FedEx location       | MEMPHIS, TN       |
| ■ 11/13/2014 - Thursday |                               |                   |
| 11:18 pm                | Arrived at FedEx location     | MEMPHIS, TN       |
| 7:25 pm                 | Left FedEx origin facility    | LINCOLN, NE       |
| 1:07 pm                 | Picked up                     | LINCOLN, NE       |

## Shipment Facts

|                 |                    |                          |                          |
|-----------------|--------------------|--------------------------|--------------------------|
| Tracking number | 801813613187       | Service                  | FedEx Priority Overnight |
| Weight          | 0.5 lbs / 0.23 kgs | Delivered To             | Receptionist/Front Desk  |
| Total pieces    | 1                  | Total shipment weight    | 0.5 lbs / 0.23 kgs       |
| Packaging       | FedEx Envelope     | Special handling section | Deliver Weekday          |



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East Longmeadow, MA. 01028  
P: 413-525-2332  
F: 413-525-6405  
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Page 1 of 2



## Sample Receipt Checklist

CLIENT NAME: University of Nebraska-Lincoln RECEIVED BY: WJS DATE: 11/14/14

1) Was the chain(s) of custody relinquished and signed? Yes No No CoC Included

2) Does the chain agree with the samples?

If not, explain:

3) Are all the samples in good condition?

If not, explain:

4) How were the samples received:

On Ice ☐ Direct from Sampling ☐ Ambient ☒ In Cooler(s) ☐

Were the samples received in Temperature Compliance of (2-6°C)? Yes No N/A

Temperature °C by Temp blank \_\_\_\_\_ Temperature °C by Temp gun 20.0°C

5) Are there Dissolved samples for the lab to filter?

Yes No

Who was notified \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

6) Are there any RUSH or SHORT HOLDING TIME samples?

Yes No

Who was notified Ext Date 11/14/14 Time 9:33

7) Location where samples are stored:

19

Permission to subcontract samples? Yes No

(Walk-in clients only) if not already approved

Client Signature: \_\_\_\_\_

8) Do all samples have the proper Acid pH: Yes No N/A

9) Do all samples have the proper Base pH: Yes No N/A

10) Was the PC notified of any discrepancies with the CoC vs the samples: Yes No N/A

### Containers received at Con-Test

|                                | # of containers |                       | # of containers |
|--------------------------------|-----------------|-----------------------|-----------------|
| 1 Liter Amber                  |                 | 8 oz amber/clear jar  |                 |
| 500 mL Amber                   |                 | 4 oz amber/clear jar  |                 |
| 250 mL Amber (8oz amber)       |                 | 2 oz amber/clear jar  |                 |
| 1 Liter Plastic                |                 | Plastic Bag / Ziploc  | <u>3</u>        |
| 500 mL Plastic                 |                 | SOC Kit               |                 |
| 250 mL plastic                 |                 | Non-ConTest Container |                 |
| 40 mL Vial - type listed below |                 | Perchlorate Kit       |                 |
| Colisure / bacteria bottle     |                 | Flashpoint bottle     |                 |
| Dissolved Oxygen bottle        |                 | Other glass jar       |                 |
| Encore                         |                 | Other                 |                 |

Laboratory Comments:

40 mL vials: # HCl \_\_\_\_\_ # Methanol \_\_\_\_\_

Doc# 277 # Bisulfate \_\_\_\_\_ # DI Water \_\_\_\_\_

Rev. 4 August 2013 # Thiosulfate \_\_\_\_\_ Unpreserved \_\_\_\_\_

Time and Date Frozen:



**Login Sample Receipt Checklist****(Rejection Criteria Listing - Using Sample Acceptance Policy)****Any False statement will be brought to the attention of Client**

| <u>Question</u>   | <u>Answer (True/False)</u> | <u>Comment</u> |
|---|----------------------------|----------------|
|   | T/F/NA                     |                |
| 1) The cooler's custody seal, if present, is intact.  | T                          |                |
| 2) The cooler or samples do not appear to have been compromised or tampered with.           | T                          |                |
| 3) Samples were received on ice.  | F                          |                |
| 4) Cooler Temperature is acceptable.  | F                          |                |
| 5) Cooler Temperature is recorded.  | T                          |                |
| 6) COC is filled out in ink and legible.  | T                          |                |
| 7) COC is filled out with all pertinent information.  | T                          |                |
| 8) Field Sampler's name present on COC.   | T                          |                |
| 9) There are no discrepancies between the sample IDs on the container and the COC.          | T                          |                |
| 10) Samples are received within Holding Time.   | T                          |                |
| 11) Sample containers have legible labels.  | T                          |                |
| 12) Containers are not broken or leaking.   | T                          |                |
| 13) Air Cassettes are not broken/open.  | NA                         |                |
| 14) Sample collection date/times are provided.  | T                          |                |
| 15) Appropriate sample containers are used.   | T                          |                |
| 16) Proper collection media used.   | T                          |                |
| 17) No headspace sample bottles are completely filled.                                      | NA                         |                |
| 18) There is sufficient volume for all requested analyses, including any requested MS/MSDs. | T                          |                |
| 19) Trip blanks provided if applicable.   | T                          |                |
| 20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.           | NA                         |                |
| 21) Samples do not require splitting or compositing.  | T                          |                |

**Who notified of False statements?****Date/Time:****Doc #277 Rev. 4 August 2013****Log-In Technician Initials:****Date/Time:**

MTJ 11/14/14 9:33

# SanAir Technologies Laboratory

## Analysis Report

prepared for

**Bockmann Inc**

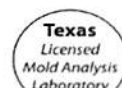
Report Date: 11/19/2014  
Project Name: Behlen Hall - UNL  
Project #: 2014-0539  
SanAir ID#: 14031452



NVLAP LAB CODE 200870-0



Certification # 652931



License # LAB0166



804.897.1177

[www.sanair.com](http://www.sanair.com)



## SanAir Technologies Laboratory, Inc.

1551 Oakbridge Drive, Suite B, Powhatan, VA 23139  
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070  
Web: <http://www.sanair.com> E-mail: [iaq@sanair.com](mailto:iaq@sanair.com)

Bockmann Inc  
1420 Centerpark Road  
Lincoln, NE 68512

November 19, 2014

SanAir ID # 14031452  
Project Name: Behlen Hall - UNL  
Project Number: 2014-0539

Dear Ron Thompson,

We at SanAir would like to thank you for the work you recently submitted. The 8 sample(s) were received on Wednesday, November 12, 2014 via FedEx. The final report(s) is enclosed for the following sample(s): PCB-01, PCB-02, PCB-03, PCB-04, PCB-05, PCB-06, PCB-07, PCB-08.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

L. Claire Macdonald  
Microbiology Laboratory Manager  
SanAir Technologies Laboratory

Final Report Includes:

- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

sample conditions:

8 sample(s) in Good condition

14031452

## BULK SAMPLING RECORD

Building: Behlen Hall - UNL Date: 11/10/14Location: Lincoln, NebraskaInspector: Ron Thompson Job #: 2014-0539 Cert #: NE - MP784

| Sample Number | Location  | Material Sampled | Homog. Area                        |
|---------------|---|------------------|------------------------------------|
| PCB - 01      | N side of link on 1 <sup>st</sup> floor   | Tan caulk        | Windows between metal and concrete |
| PCB - 02      | S-E stairwell 1 <sup>st</sup> floor window  | Tan caulk        | Windows between metal and concrete |
| PCB - 03      | Door to Room 360<br>Hall side   | Tan caulk        | Between metal frame & concrete     |
| PCB - 04      | Door to Room 254<br>Hall side   | Tan caulk        | Between metal frame & concrete     |
| PCB - 05      | N door in Room 265A<br>Room side  | Tan caulk        | Between metal frame & concrete     |
| PCB - 06      | Duct above door in Room 265B  | Gray sealant     | Misc. ducts                        |
| PCB - 07      | Expansion joint between 1 <sup>st</sup> and 2 <sup>nd</sup> floors in N stairwell | Gray caulk       | Between block and cement           |
| PCB - 08      | Duct above ceiling in hall outside rest rooms on 2 <sup>nd</sup> floor            | Tan sealant      | Misc. ducts                        |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |
|               |   |                  |                                    |

Date: 11-11-14 Time: \_\_\_\_\_ Relinquished By: Ron Thompson

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received By: \_\_\_\_\_

5 day TAT

PCB Analysis

MC

NOV 12 2014

9:42AM

# SCHNEIDER LABORATORIES GLOBAL

## INCORPORATED

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*Over 25 Years of Excellence in Service and Technology*

## LABORATORY ANALYSIS REPORT

**Account:** 3499-14-1697  
**Customer:** SanAir Technologies Laboratory, Inc.  
**Address:** 1551 Oakbridge Drive, Ste. B  
Powhatan, VA 23139  
**Project Name:** Behlen Hall UNL  
**Project No.:** 2014-0539  
**Job Location:**  
**P.O.#:** 14031452

**Date/Time Collected:** 11/10/2014  
**Date/Time Received:** 11/12/2014 2:55 PM  
**Date Reported:** 11/19/2014  
**Receipt Temp., °C:**  
**Sample Matrix:** Bulk

**Sample Description:** N Side Of Link 1st Floor  
**SLI Sample No.:** 32336468  
**Cust Sample No.:** PCB-01

| Analyte   | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|---|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b>                        |                 |                    |       |                 |                    |         |
| Aroclor - 1016  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1221  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1232  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1242  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1248  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1254  | 62730           | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1260  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1268  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1262  | BQL             | 3391               | µg/kg | 10              | 11/19/2014         | APS     |
| <b><u>Polychlorinated Biphenyls based on SW846 8082A – Surrogate Recoveries</u></b> |                 |                    |       |                 |                    |         |
| Surrogate   | Recovery        |                    |       |                 |                    |         |
| DCB   | 57%             |                    |       |                 |                    |         |
| TCMX  | 47%             |                    |       |                 |                    |         |

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Accrediting bodies: AIHA-LAP, LLC 100527, NVLAP 101150-0, VELAP/NELAC 460135 -  
Contact laboratory for current national and state certifications.

**Sample  
Description:** SE Stairwell 1st Floor

**SLI Sample No.:** 32336469  
**Cust Sample No.:** PCB-02

| Analyte  | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|--|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b> |                 |                    |       |                 |                    |         |
| Aroclor - 1016   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1221   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1232   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1242   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1248   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1254   | 33200           | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1260   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1268   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |
| Aroclor - 1262   | BQL             | 3811               | µg/kg | 10              | 11/19/2014         | APS     |

**Polychlorinated Biphenyls based on SW846 8082A – Surrogate Recoveries**

| Surrogate | Recovery |
|-----------|----------|
| DCB       | 48%      |
| TCMX      | MI       |

**Sample  
Description:** Door Room 360 Hall Side

**SLI Sample No.:** 32336470  
**Cust Sample No.:** PCB-03

| Analyte  | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|--|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b> |                 |                    |       |                 |                    |         |
| Aroclor - 1016   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254   | 1710            | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262   | BQL             | 500                | µg/kg | 1               | 11/19/2014         | APS     |

**Polychlorinated Biphenyls based on SW846 8082A – Surrogate Recoveries**

| Surrogate | Recovery |
|-----------|----------|
| DCB       | 46%      |
| TCMX      | 42%      |

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Accrediting bodies: AIHA-LAP, LLC 100527, NVLAP 101150-0, VELAP/NELAC 460135 -  
Contact laboratory for current national and state certifications.

**Sample  
Description:** Door Room 254 Hall Side

**SLI Sample No.:** 32336471  
**Cust Sample No.:** PCB-04

| Analyte   | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|---|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b>                        |                 |                    |       |                 |                    |         |
| Aroclor - 1016  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254  | 2098            | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| <b><u>Polychlorinated Biphenyls based on SW846 8082A – Surrogate Recoveries</u></b> |                 |                    |       |                 |                    |         |
| Surrogate   | Recovery        |                    |       |                 |                    |         |
| DCB   | 47%             |                    |       |                 |                    |         |
| TCMX  | MI              |                    |       |                 |                    |         |

**Sample  
Description:** N Door Room 265A Room Side

**SLI Sample No.:** 32336472  
**Cust Sample No.:** PCB-05

| Analyte   | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|---|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b>                        |                 |                    |       |                 |                    |         |
| Aroclor - 1016  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254  | 2851            | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262  | BQL             | 429                | µg/kg | 1               | 11/19/2014         | APS     |
| <b><u>Polychlorinated Biphenyls based on SW846 8082A – Surrogate Recoveries</u></b> |                 |                    |       |                 |                    |         |
| Surrogate   | Recovery        |                    |       |                 |                    |         |
| DCB   | 66%             |                    |       |                 |                    |         |
| TCMX  | 54%             |                    |       |                 |                    |         |

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Accrediting bodies: AIHA-LAP, LLC 100527, NVLAP 101150-0, VELAP/NELAC 460135 -  
Contact laboratory for current national and state certifications.

**Sample  
Description:** Duct Room 265 B

**SLI Sample No.:** 32336473  
**Cust Sample No.:** PCB-06

| Analyte  | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|--|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b> |                 |                    |       |                 |                    |         |
| Aroclor - 1016   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262   | BQL             | 376                | µg/kg | 1               | 11/19/2014         | APS     |

**Polychlorinated Biphenyls based on SW846 8082A -- Surrogate Recoveries**

| Surrogate | Recovery |
|-----------|----------|
| DCB       | 51%      |
| TCMX      | 52%      |

**Sample  
Description:** Between 1st 2nd Floor N Stair

**SLI Sample No.:** 32336474  
**Cust Sample No.:** PCB-07

| Analyte  | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|--|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b> |                 |                    |       |                 |                    |         |
| Aroclor - 1016   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262   | BQL             | 0                  | µg/kg | 1               | 11/19/2014         | APS     |

**Polychlorinated Biphenyls based on SW846 8082A -- Surrogate Recoveries**

| Surrogate | Recovery |
|-----------|----------|
| DCB       | 37%      |
| TCMX      | MI       |

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Accrediting bodies: AIHA-LAP, LLC 100527, NVLAP 101150-0, VELAP/NELAC 460135 -  
Contact laboratory for current national and state certifications.



Sample  
Description: Outside Restroom 2nd Floor

SLI Sample No.: 32336475  
Cust Sample No.: PCB-08

| Analyte   | Analysis Result | Quantitation Limit | Units | Dilution Factor | Analysis Date/Time | Analyst |
|---|-----------------|--------------------|-------|-----------------|--------------------|---------|
| <b><u>Polychlorinated Biphenyls based on SW846 8082A</u></b>                        |                 |                    |       |                 |                    |         |
| Aroclor - 1016  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1221  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1232  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1242  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1248  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1254  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1260  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1268  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| Aroclor - 1262  | BQL             | 482                | µg/kg | 1               | 11/19/2014         | APS     |
| <b><u>Polychlorinated Biphenyls based on SW846 8082A - Surrogate Recoveries</u></b> |                 |                    |       |                 |                    |         |
| Surrogate   | Recovery        |                    |       |                 |                    |         |
| DCB   | 51%             |                    |       |                 |                    |         |
| TCMX  | MI              |                    |       |                 |                    |         |



Reviewed By: Andrew P. Sulak, Technical Director

All samples for organics testing should be shipped in cool conditions, 1 to 6°C. Quality Control Data available upon request. Sample concentrations below the Quantitation Limit are noted as BQL (Below Quantitation Limit) or ND (None Detected) or with a "less than" (<) sign. Values designated with a "B" indicate presence of the analyte in the laboratory blank at a concentration above the Quantitation Limit. Surrogate Spike results designated with "D" indicate that the analyte was diluted out. "MI" indicates matrix interference. Soil results are reported on a dry weight basis. Results relate only to samples as received by the laboratory. Unusual sample conditions, if any, are described. All testing is done in strict accordance with SLI protocol. Visit [www.slabinc.com](http://www.slabinc.com) for current certifications.



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Work Order Key

V: 1030 1030614

|   |                                |  |
|---|--------------------------------|--|
| Submitting Co.<br><b>SanAir Technologies Laboratory</b>     | Lab Use<br>WO #<br><b>3499</b> | Phone #<br>Fax #<br>E-mail<br><b>804-897-1177</b><br><b>804-897-0070</b> |
| 1541 Oakbridge Drive, Suite #<br><b>Frederick, VA 22159</b> |                                |  |

|   |   |
|---|---|
| Project Name:<br><b>Behlen Hall - ONL</b> | Special Instructions (include requests for special reporting or data preferences) |
| Project Location:<br><b>2014-0539</b>     |   |
| Project Number:<br><b>19031432</b>        |   |
| PO Number:                                | State Of Collection<br><b>NE</b>  |

|  |  |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
|--|--|---|--------------------------------|----------------------------------|--------------------------------|--|-------------------------------------|---|---|--|-------------------------------------|------------------------------|-------------------------------|--------------------------------|--|---------------------------------|--------------------------|-------------------------------|--------------------------|---|--|---|--|---|---|---|
| <b>Turn Around Time</b><br><input type="checkbox"/> 2 hours*<br><input type="checkbox"/> Same day*<br><input type="checkbox"/> 1 business day*<br><input type="checkbox"/> 2 business days*<br><input type="checkbox"/> 3 business days*<br><input checked="" type="checkbox"/> 5 business days*<br><input type="checkbox"/> Full TCLP (10d)<br><input type="checkbox"/> Weekend*<br><small>* not available for all tests<br/>Schedule rush organics, multi-metals &amp; weekend tests in advance.</small> | <b>Matrix / Sample Type (Select ONE)</b><br><small>As samples on form should be of SAME matrix type. Use additional forms as needed.</small><br><table border="0"><tr><td><input type="checkbox"/> Air</td><td><input type="checkbox"/> Solid</td></tr><tr><td><input type="checkbox"/> Aqueous</td><td><input type="checkbox"/> Waste</td></tr><tr><td><input checked="" type="checkbox"/> Bulk</td><td><input type="checkbox"/> Wastewater</td></tr><tr><td><input type="checkbox"/> Hi-Vol Filter (PM10)</td><td><input type="checkbox"/> Water/Drinking</td></tr><tr><td><input type="checkbox"/> Hi-Vol Filter (TSP)</td><td><input type="checkbox"/> Compliance</td></tr><tr><td><input type="checkbox"/> Oil</td><td><input type="checkbox"/> Wipe</td></tr><tr><td><input type="checkbox"/> Paint</td><td><input type="checkbox"/> Wipe, Composite</td></tr><tr><td><input type="checkbox"/> Sludge</td><td><input type="checkbox"/></td></tr><tr><td><input type="checkbox"/> Soil</td><td><input type="checkbox"/></td></tr></table> | <input type="checkbox"/> Air  | <input type="checkbox"/> Solid | <input type="checkbox"/> Aqueous | <input type="checkbox"/> Waste | <input checked="" type="checkbox"/> Bulk | <input type="checkbox"/> Wastewater | <input type="checkbox"/> Hi-Vol Filter (PM10) | <input type="checkbox"/> Water/Drinking | <input type="checkbox"/> Hi-Vol Filter (TSP) | <input type="checkbox"/> Compliance | <input type="checkbox"/> Oil | <input type="checkbox"/> Wipe | <input type="checkbox"/> Paint | <input type="checkbox"/> Wipe, Composite | <input type="checkbox"/> Sludge | <input type="checkbox"/> | <input type="checkbox"/> Soil | <input type="checkbox"/> | <b>Tests / Analytes (Select ALL that Apply)</b><br><table border="0"><tr><td><b>Asbestos Air / Fiber Counts</b><br/><input type="checkbox"/> PCM (NIOSH 7400)<br/><input type="checkbox"/> TBM (AMERA)<br/><input type="checkbox"/> TEM (EPA Level II)<br/><input type="checkbox"/></td><td><b>Asbestos Bulk / Air (D)</b><br/><input type="checkbox"/> PLM (EPA 600, 1002)<br/><input type="checkbox"/> PLM (EPA Point Count)<br/><input type="checkbox"/> PLM (Qualitative only)<br/><input type="checkbox"/> NYCLAP 193.1/4/5<br/><input type="checkbox"/> CASLAP (EPA Interim)<br/><input type="checkbox"/> TEM (Chatfield)</td><td><b>Metals - Total Conc.</b><br/><input type="checkbox"/> Lead<br/><input type="checkbox"/> RCRA Metals<br/><input type="checkbox"/></td></tr><tr><td><b>Miscellaneous Tests</b><br/><input type="checkbox"/> Total Dust (NIOSH 0500)<br/><input type="checkbox"/> Resp. Dust (NIOSH 0500)<br/><input type="checkbox"/> Silica - FTIR (NIOSH 7502)<br/><input type="checkbox"/> Silica - XRD (NIOSH 7500)<br/><input type="checkbox"/></td><td><b>FOR ASBESTOS AIR:</b><br/>TYPE OF RESPIRATOR<br/>URBD:</td><td><b>Metals - Extract</b><br/><input type="checkbox"/> TCLP / Lead<br/><input type="checkbox"/> TCLP / RCRA Metals<br/><input type="checkbox"/> TCLP / EIS (w/ organics)<br/><input type="checkbox"/> Other</td></tr></table> | <b>Asbestos Air / Fiber Counts</b><br><input type="checkbox"/> PCM (NIOSH 7400)<br><input type="checkbox"/> TBM (AMERA)<br><input type="checkbox"/> TEM (EPA Level II)<br><input type="checkbox"/> | <b>Asbestos Bulk / Air (D)</b><br><input type="checkbox"/> PLM (EPA 600, 1002)<br><input type="checkbox"/> PLM (EPA Point Count)<br><input type="checkbox"/> PLM (Qualitative only)<br><input type="checkbox"/> NYCLAP 193.1/4/5<br><input type="checkbox"/> CASLAP (EPA Interim)<br><input type="checkbox"/> TEM (Chatfield) | <b>Metals - Total Conc.</b><br><input type="checkbox"/> Lead<br><input type="checkbox"/> RCRA Metals<br><input type="checkbox"/> | <b>Miscellaneous Tests</b><br><input type="checkbox"/> Total Dust (NIOSH 0500)<br><input type="checkbox"/> Resp. Dust (NIOSH 0500)<br><input type="checkbox"/> Silica - FTIR (NIOSH 7502)<br><input type="checkbox"/> Silica - XRD (NIOSH 7500)<br><input type="checkbox"/> | <b>FOR ASBESTOS AIR:</b><br>TYPE OF RESPIRATOR<br>URBD: | <b>Metals - Extract</b><br><input type="checkbox"/> TCLP / Lead<br><input type="checkbox"/> TCLP / RCRA Metals<br><input type="checkbox"/> TCLP / EIS (w/ organics)<br><input type="checkbox"/> Other |
| <input type="checkbox"/> Air   | <input type="checkbox"/> Solid   |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Aqueous   | <input type="checkbox"/> Waste   |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input checked="" type="checkbox"/> Bulk   | <input type="checkbox"/> Wastewater  |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Hi-Vol Filter (PM10)  | <input type="checkbox"/> Water/Drinking  |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Hi-Vol Filter (TSP)   | <input type="checkbox"/> Compliance  |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Oil   | <input type="checkbox"/> Wipe  |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Paint   | <input type="checkbox"/> Wipe, Composite   |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Sludge  | <input type="checkbox"/>   |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <input type="checkbox"/> Soil  | <input type="checkbox"/>   |   |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <b>Asbestos Air / Fiber Counts</b><br><input type="checkbox"/> PCM (NIOSH 7400)<br><input type="checkbox"/> TBM (AMERA)<br><input type="checkbox"/> TEM (EPA Level II)<br><input type="checkbox"/>   | <b>Asbestos Bulk / Air (D)</b><br><input type="checkbox"/> PLM (EPA 600, 1002)<br><input type="checkbox"/> PLM (EPA Point Count)<br><input type="checkbox"/> PLM (Qualitative only)<br><input type="checkbox"/> NYCLAP 193.1/4/5<br><input type="checkbox"/> CASLAP (EPA Interim)<br><input type="checkbox"/> TEM (Chatfield)  | <b>Metals - Total Conc.</b><br><input type="checkbox"/> Lead<br><input type="checkbox"/> RCRA Metals<br><input type="checkbox"/>  |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |
| <b>Miscellaneous Tests</b><br><input type="checkbox"/> Total Dust (NIOSH 0500)<br><input type="checkbox"/> Resp. Dust (NIOSH 0500)<br><input type="checkbox"/> Silica - FTIR (NIOSH 7502)<br><input type="checkbox"/> Silica - XRD (NIOSH 7500)<br><input type="checkbox"/>  | <b>FOR ASBESTOS AIR:</b><br>TYPE OF RESPIRATOR<br>URBD:  | <b>Metals - Extract</b><br><input type="checkbox"/> TCLP / Lead<br><input type="checkbox"/> TCLP / RCRA Metals<br><input type="checkbox"/> TCLP / EIS (w/ organics)<br><input type="checkbox"/> Other |                                |                                  |                                |  |                                     |   |   |  |                                     |                              |                               |                                |  |                                 |                          |                               |                          |   |  |   |  |   |   |   |

| Sample # | Date Sampled | Time Sampled | Sample Identification<br>(e.g. Employee, SRN, Bldg, Material)          | Wiped Area (ft <sup>2</sup> ) | Type <sup>1</sup><br>A,B,P,E | Time <sup>2</sup><br>Start Stop | Flow Rate <sup>3</sup><br>Start Stop | Total <sup>4</sup><br>Air Vol |
|----------|--------------|--------------|--|-------------------------------|------------------------------|---------------------------------|--------------------------------------|-------------------------------|
| PCB-01   | 11/10/14     |              | N Side of Link on 1st Floor Tan Caulk                                  |                               |                              |                                 |                                      |                               |
| PCB-02   |              |              | S-E Stairwell 1st Floor Window Tan Caulk                               |                               |                              |                                 |                                      |                               |
| PCB-03   |              |              | Door To Room 260 Hall Side Tan Caulk                                   |                               |                              |                                 |                                      |                               |
| PCB-04   |              |              | Door To Room 254 Hall Side Tan Caulk                                   |                               |                              |                                 |                                      |                               |
| PCB-05   |              |              | N Door In Room 265A Room Side Tan Caulk                                |                               |                              |                                 |                                      |                               |
| PCB-06   |              |              | Duct Above Door In Room 265B Gray Sealant                              |                               |                              |                                 |                                      |                               |
| PCB-07   |              |              | Expansion Joint Between 1st And 2nd Floors In N Stairwell Gray Caulk   |                               |                              |                                 |                                      |                               |
| PCB-08   |              |              | Duct Above Ceiling In Hall Outside Rest Rooms on 2nd Floor Tan Sealant |                               |                              |                                 |                                      |                               |

<sup>1</sup>Type: Aerosol Blank Personal Exposure Unit <sup>2</sup>Beginning/End of Sample Period <sup>3</sup>Pump Calibration in Liters/Minute <sup>4</sup>Volume in Liters (Time in min \* flow in L/min)

|  |   |   |
|--|---|---|
| Sampled by<br>NAME<br>SIGNATURE<br>DATE/TIME | Relinquished to lab by<br>NAME <b>Ron Thompson</b><br>SIGNATURE<br>DATE/TIME <b>11/12/14 2:50pm</b> | WB:<br><input type="checkbox"/> FX<br><input type="checkbox"/> UPB<br><input type="checkbox"/> URM<br><input checked="" type="checkbox"/> HD<br><input type="checkbox"/> DB |
|--|---|---|

☒ Sample return requested ☐ Ambient temp ☐ Ion ☐ pH ☐ Cl ☐ BR ☐ S ☐ X Chain-of-Custody documents kept on file internally within lab. Terms and conditions page 2

## UNL BEHLEN LAB - PROJECT SUMMARY

**ConTest Analytical Laboratory Job Numbers: 14I0253, 14K0312 & 14K0656**

**SanAir Technologies Laboratory Job Number: 14031452**

**Midwest Laboratories Inc. Job Number: 2293374**

A modified Tier II validation was performed on the data. The criteria detailed below were used to qualify the data. Raw data were not used to verify the results reported by the laboratory.

The data validation was conducted in accordance with "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review" June 2008; "EPA New England Environmental Data Review Supplement For Regional Data Review Elements and Superfund Specific Guidance/Procedures" April 2013; and the referenced method.

ConTest and Midwest samples were received at ambient temperature. No qualifications were applied.

SanAir samples were evaluated for holding times and surrogates only since no other QC data were included with the sample report.

Midwest samples could not be evaluated since no QC data were included with the sample report.

### PCBs:

All polychlorinated biphenyl compound (PCB) samples were extracted and analyzed within technical holding times. No qualifications were applied.

All PCB surrogates met acceptance criteria (30-150%) or were diluted out with the following exceptions:

| LAB ID   | SAMPLE ID | TCMX (%) | QUALIFIER               |
|----------|-----------|----------|-------------------------|
| 32336469 | PCB-02    | MI       | None, 10x therefore, DO |
| 32336471 | PCB-04    | MI       | J/UJ                    |
| 32336474 | PCB-07    | MI       | UJ*                     |
| 32336475 | PCB-08    | MI       | UJ                      |

TCMX = tetrachloro-m-xylene; MI = matrix interference; DO = diluted out

\*Data is ultimately rejected (R) due to a laboratory quantitation limit of 0 for all PCBs.

The PCB method blanks were non-detect (ND) for all target analytes. No qualifications were applied.

No PCB field blank samples were collected with these analytical packages. No qualifications were applied.

The PCB matrix spike/matrix spike duplicate (MS/MSD) performed on sample BVC (14K0656-01) met acceptance criteria (40%-140%) with the following exceptions:

| LAB ID     | SAMPLE ID | PCB-1016 (%)<br>MS/MS/MSD/MSD | PCB-1260 (%)<br>MS/MS/MSD/MSD | QUALIFIER                                 |
|------------|-----------|-------------------------------|-------------------------------|---|
| 14K0656-01 | BVC       | 671/536/695/555               | OK/OK/OK/OK                   | None, PCB-1248 &<br>PCB-1254 interference |

The PCB laboratory control samples (LCS)/laboratory control sample duplicate (LCSD) met recovery (50-150%) and relative percent difference (RPD) ( $\leq 30\%$ ) acceptance criteria with the following exceptions:

## UNL BEHLEN LAB - PROJECT SUMMARY

ConTest Analytical Laboratory Job Numbers: 14I0253, 14K0312 & 14K0656

SanAir Technologies Laboratory Job Number: 14031452

Midwest Laboratories Inc. Job Number: 2293374

| LCS/LCSD ID     | ANALYTE      | %R/%R/RPD                | IMPACTED SAMPLES | QUALIFIER            |
|-----------------|--------------|--------------------------|------------------|----------------------|
| B109252BS1/BSD1 | Aroclor-1016 | OK/OK/34.4<br>OK/OK/32.5 | 14K0312          | J, detected Aroclors |
|                 | Aroclor-1260 | OK/OK/49.8<br>OK/OK/41.9 | 14K0312          | J, detected Aroclors |

No PCB field duplicate samples were submitted with these analytical packages. No qualifications were applied.

The RPD between the column results for all detected Aroclors met acceptance criteria with the following exceptions:

| LAB ID     | SAMPLE ID | PCB  | RPD  | QUALIFIER |
|------------|-----------|------|------|-----------|
| 14K0312-03 | BE        | 1248 | 32.7 | J         |
| 14K0312-04 | BW        | 1254 | 39.2 | J         |
|            |           | 1260 | 41.2 | J         |
| 14K0656-03 | BVD       | 1248 | 45.5 | J         |

According to the case narrative, for Aroclor-1242 in sample BB (14K0312-05) and for Aroclor-1248 in sample BW (14K0312-04); "Sample fingerprint does not match standard exactly. Aroclor with the closest matching pattern is reported." No qualifications were applied.

According to the case narrative, for Aroclor-1254 in sample BW (14K0312-04); "Due to continuing calibration non-conformance on the confirmatory detector, the lower of the two results was reported." Therefore, the Aroclor-1254 result in sample BW (14K0312-04) is estimated (J).

Many samples were analyzed at a dilution due to the high concentration of Aroclors present in the sample and/or due to the sample matrix. Elevated quantitation limits are reported in these samples as a result of the dilutions performed.

Data Check, Inc.  
P.O. Box 29  
81 Meaderboro Road  
New Durham, NH 03855

Gloria J. Switalski:  
President



Date: 12/18/2014

## **APPENDIX D: DUST MONITORING PLAN**

## APPENDIX D – SUPPORT ZONE/PERIMETER DUST MONITORING PLAN

Airborne particulate matter (PM) consists of many different substances suspended in air in the form of particles (solids or liquid droplets) that vary widely in size. Inhalation hazards are caused if the intake of these particles includes intake of vapors and/or contaminated dust. Particles less than 10 micrometers in diameter (PM-10), which include both respirable fine (less than 2.5 micrometers) and coarse (less than 10 micrometers) dust particles, pose the greatest potential health concern because they can pass through the nose and throat and get into the lungs.

During the performance of the planned remediation activities, particulate matter in the form of potentially PCB-affected dust may be generated. The greatest potential for the generation of affected dust is during the removal of PCB containing building materials, particularly during the grinding of concrete.

As indicated in the remediation plan, the main dust control mechanism to be employed on the project will be the use of engineering controls (e.g. wet techniques and misting), polyethylene containment structures, HEPA filtration, and personal protective equipment (PPE). In addition, particulate air monitoring will be conducted during intrusive or dust-generating activities in the Support Work Zone (SWZ) and perimeter to the SWZ. The SWZ is the area just outside of the active work areas, in designated safe work zones or support zones. Particulate air monitoring will determine if fugitive dust particles are present in the ambient air within the designated SWZ and/or perimeter during active removal activities. A direct-reading particulate meter will be used to monitor airborne particulate concentrations during site activities. Particulate concentrations shall be utilized as an indirect indicator of exposures to on-site receptors.

Dust concentrations in the SWZ will be measured using a suitable real time aerosol particulate monitor capable of determining ambient air fugitive dust concentrations to 0.001 milligrams per cubic meter (mg/m<sup>3</sup>). Dust monitoring shall be conducted during active dust generating removal activities such as saw cutting and grinding and full containments are not in place at a frequency of one reading every two hours. Prior to the active removal actions and at periodic points during the project, dust monitoring readings will be recorded to document background particulate matter concentrations.

If total particulate concentrations in the SWZ exceed the action limits (as specified below and incorporating background readings) and are sustained (i.e. greater than 5 minutes), then the following actions will be taken:

- Engineering controls (HEPA filtration, containment, etc.) will be inspected to insure proper operation;
- Work practices will be evaluated;
- Additional dust suppression techniques to mitigate fugitive dust shall be initiated.

If applicable, the dust suppression techniques shall involve the application of a fine mist of water over the area creating the fugitive dust condition. The water shall be applied either by small hand held sprayers or sprinklers. In the event that the total of airborne particulate cannot be maintained below the action limit in the SWZ, then work activities shall be ceased until sustained readings are below the action limit or the SWZ designation is re-evaluated.

OSHA has published the following permissible exposure limits (8 hour time weighted average) for air contaminants (29 CFR 1910.1000):

| Air Contaminant          | PEL (8-hour TWA)      |
|--------------------------|-----------------------|
| Total Dust               | 15 mg/m <sup>3</sup>  |
| Respirable Dust Fraction | 5 mg/m <sup>3</sup>   |
| PCBs (42% Chlorine)      | 1 mg/m <sup>3</sup>   |
| PCBs (54% Chlorine)      | 0.5 mg/m <sup>3</sup> |

In addition, EPA has established a National Ambient Air Quality Standard for PM-10 of 0.150 mg/m<sup>3</sup> (24-hr average).

## APPENDIX D – SUPPORT ZONE/PERIMETER DUST MONITORING PLAN

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A total airborne particulate action limit has been established for the building material removal work to be conducted with consideration of the specific receptors, PCB concentrations, work activities, and OSHA permissible exposure limits. The action limit applies only to dust monitoring within the SWZ and perimeter to the SWZ; an action limit has not been set for the active work zones (exclusion zones) as engineering controls and PPE will be used within these zones.

Given the nature of surrounding buildings and the anticipated PCB concentration in dust that may be generated during abatement activities, a conservative action limit of 0.1 mg/m<sup>3</sup> above background will be maintained during site work. Dust monitoring at a location representative of background conditions (i.e. a location upwind without active remedial activities in progress) will be conducted at the same frequency as SWZ monitoring to obtain data representative of real-time background conditions. The action limit will be used to determine if and when additional engineered controls and/or work stoppages would be necessary.

## **APPENDIX E: MANUFACTURER'S PRODUCT INFORMATION**



## Sikagard® 62

High-build, protective, solvent-free,  
colored epoxy coating

|                            |  |
|----------------------------|--|
| <b>Description</b>         | Sikagard 62 is a 2-component, 100% solids, moisture-tolerant epoxy resin. It produces a high-build, protective, dampproofing and waterproofing vapor-barrier system.   |
| <b>Where to Use</b>        | Use as a high build, corrosion-resistant, protective coating, as a protective lining for secondary containment structures or as a seamless flooring system.  |
| <b>Advantages</b>          | <ul style="list-style-type: none"><li>■ Exceptional tensile strength.</li><li>■ Good chemical resistance for long-term protection.</li><li>■ Convenient A:B = 1:1 mixing ratio.</li><li>■ Easy, paint-like viscosity.</li><li>■ Available in 3 standard colors: gray, red, and tan.</li><li>■ Excellent bonding to all common structural substrates.</li><li>■ Super abrasion resistance for long-term wear.</li><li>■ Sikagard 62 gray, after cure, is approved for contact with potable water.</li><li>■ Material is USDA certifiable.</li></ul> |
| <b>Coverage</b>            | Approximately 150-250 sq. ft./gal. depending on condition of substrate.  |
| <b>Packaging</b>           | 4 gal. units; 1 qt. units, 12/case.  |
| <b>How to Use</b>          |  |
| <b>Surface Preparation</b> | Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants.<br><b>Preparation Work: Concrete</b> - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blastcleaning or equivalent mechanical means.<br><b>Steel</b> - Should be cleaned and prepared thoroughly by blastcleaning.   |
| <b>Mixing</b>              | <b>Pre-mix each component.</b> Proportion equal parts by volume of Components 'A' and 'B' into a clean mixing container. Mix with a low-speed (400-600 rpm) drill using a Sika paddle for 3 minutes, until uniform in color.   |
| <b>Application</b>         | Apply coating using high-quality roller, brush or spray. Two coats are recommended. Apply second coat as soon as the first coat is tack-free and the traffic of application will not damage the first coat. The  |

### Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

|   |   |                      |  |
|---|---|----------------------|--|
| <b>Shelf Life</b>                             | 2 years in original, unopened containers.   |                      |  |
| <b>Storage Conditions</b>                     | Store dry at 40°-95°F (4°-35°C). <b>Condition material to 65°-75°F (18°-24°C) before using.</b> |                      |  |
| <b>Color</b>                                  | Gray, red, tan.   |                      |  |
| <b>Mixing Ratio</b>                           | Component 'A' : Component 'B'=1:1 by volume.  |                      |  |
| <b>Viscosity (Mixed)</b>                      | Approximately 3,500 cps.  |                      |  |
| <b>Pot Life</b>                               | Approximately 35 to 40 minutes. (60 gram mass).   |                      |  |
| <b>Tack-Free Time</b>                         | Approximately 4 hours.  |                      |  |
| <b>Open Time</b>                              | Light foot traffic: 5-7 hours. Rubber-wheel traffic: 8-10 hours.                                |                      |  |
| <b>Immersion and Chemical Exposure</b>        | Minimum cure: 3 days  |                      |  |
| <b>Tensile Properties (ASTM D-638)</b>        |   |                      |  |
| <b>14 day</b>                                 | Tensile Strength  | 5,400 psi (37.3 MPa) |  |
|   | Elongation at Break   | 2.7 %                |  |
| <b>Abrasion (ASTM D-1044) (Taber Abrader)</b> |   |                      |  |
| <b>7 day</b>                                  | Weight loss, 1,000 cycles (H-22 wheel, 1,000 gm weight)   | 0.61 gm              |  |
| <b>Abrasion Resistance (ASTM D-968)</b>       |   |                      |  |
| <b>14 day</b>                                 | Abrasion Coefficient  | 51 liters/mil.       |  |
| <b>Adhesion (ASTM D-3359)</b>                 |   |                      |  |
| <b>1 day</b>                                  | Adhesion Classification   | 4A                   |  |
| <b>Water Absorption (ASTM D-570)</b>          |   |                      |  |
| <b>7 day</b>                                  | (24 hour immersion)   | 0.1%                 |  |

Construction



second coat, however, **must** be applied within 48 hours since a longer delay will require additional surface preparation.

**Do not spray with slip resistant granules mixed into the coating. For use as a seamless flooring system, consult Technical Service.**

|                    |  |
|--------------------|--|
| <b>Limitations</b> | <ul style="list-style-type: none"> <li>■ Minimum substrate and ambient temperature for application 50°F (10°C).</li> <li>■ Do not apply over wet, glistening surface.</li> <li>■ Material is a vapor barrier after cure.</li> <li>■ Do not apply to porous surfaces exhibiting moisture-vapor transmission during the application. Consult Technical Service.</li> <li>■ Minimum age of concrete prior to application is 21-28 days, depending on curing and drying conditions.</li> <li>■ Do not apply to exterior, on-grade substrates.</li> <li>■ Use oven-dried aggregate only.</li> <li>■ Do not thin with solvents.</li> <li>■ Not an aesthetic product. Color may alter due to variations in lighting and/or UV exposure.</li> <li>■ On 'green or 'damp' concrete, EpoCem can be used as a pore filler to reduce vapor drive and potential osmotic blistering.</li> </ul>                       |
| <b>Caution</b>     | <p><b>Component 'A' - Irritant; Sensitizer</b> - Contains epoxy resin. Can cause sensitization after prolonged or repeated contact. Skin and eye irritant. Vapors may cause respiratory irritation. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of high vapor concentrations, use an appropriate NIOSH approved respirator. Remove contaminated clothing.</p> <p><b>Component 'B' - Sensitizer</b> - Contains amines. Contact with eyes or skin may cause severe burns. Can cause sensitization after prolonged or repeated contact. Skin and eye irritant. Vapors may cause respiratory irritation. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of high vapor concentrations, use an appropriate NIOSH approved respirator. Remove contaminated clothing.</p> |
| <b>First Aid</b>   | <p><b>Eyes:</b> Hold eyelids apart and flush thoroughly with water for 15 minutes. <b>Skin:</b> Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. <b>Inhalation:</b> Remove person to fresh air. <b>Ingestion:</b> Do not induce vomiting. <b>In all cases, contact a physician immediately if symptoms persist.</b></p>  |
| <b>Clean Up</b>    | Ventilate area. Confine spill. Collect with absorbent material. Dispose of in accordance with current, applicable local, state and federal regulations. Uncured material can be removed with approved solvent. Cured material can only be removed mechanically.  |

#### Chemical Resistance

Specimen: Two Coats - 10 mils Total

Cured 10 days

Substrate: asbestos cement

| Chemical                             | Test Temp.   | Storage Time and Evaluation |         |          |          |           |
|--------------------------------------|--------------|-----------------------------|---------|----------|----------|-----------|
|                                      |              | 1 Day                       | 1 Month | 2 Months | 6 Months | 12 Months |
| Water                                | 75°F (24°C)  | A                           | A       | A        | A        | A         |
|                                      | 100°F (38°C) | A                           | A       | A        | A        | A         |
|                                      | 140°F (60°C) | A                           | A       | A        | A, D     | A, D      |
| Sodium Chloride Solution (Saturated) | 75°F (24°F)  | A                           | A       | A        | A        | A         |
|                                      | 100°F (38°C) | A                           | A       | A        | A        | A         |
| Sodium Hydroxide 30%                 | 75°F (24°C)  | A                           | A       | A        | A        | A         |
| Cement Water (Saturated)             | 75°F (24°C)  | A                           | A       | A        | A        | A         |
| Detergent Solution (5% Ajax)         | 75°F (24°C)  | A                           | A       | A        | A        | A         |
|                                      | 140°F (60°C) | A                           | A       | A        | A, D     | A, D      |
| Hydrochloric Acid 10%                | 75°F (24°C)  | A                           | A       | A        | A        | A         |
| Sulfuric Acid 10%                    | 75°F (24°C)  | A                           | A       | A        | B        | B         |
| Oxalic Acid 10%                      | 75°F (24°C)  | A                           | A, D    | A, D     | A, D     | A, D      |
| Citric Acid 10%                      | 75°F (24°C)  | A                           | A, D    | A, D     | A, D     | A, D      |
| Fuel Oil (Home Heating)              | 75°F (24°C)  | A                           | A       | A        | A        | A, D      |
| Gasoline (Unleaded)                  | 75°F (24°C)  | A                           | A       | A        | A        | A, D      |
| Iso-Octane                           | 75°F (24°C)  | A                           | A       | A        | A        | A, D      |
| Toluol                               | 75°F (24°C)  | A                           | A       | A        | A        | A, D      |
| Silage                               | 75°F (24°C)  | A                           | A       | A, D     | A, D     | B, D      |
| Synthetic Silage                     | 75°F (24°C)  | A                           | A       | B, D     | B, D     | B, D      |
| Ethyl Alcohol                        | 75°F (24°C)  | A                           | C       | -        | -        | -         |

A: Resistant in permanent contact

B: Temporary resistance

C: Destroyed

D: Discolored

#### KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY

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